

• **Marine Mammals**

- **Cetaceans.** Thirty-four of the 111 marine mammal species known worldwide have been recorded off the Southern California coast. Twenty-seven of these mammals are cetaceans (whales, dolphins, and porpoises). The remaining seven species are carnivores represented by six species of seals and the California sea otter (Table 1.4.1-3).

Twenty of the 27 cetaceans recorded in the Southern California Bight are oceanic species widely distributed throughout the Pacific Ocean (Watson, 1981). These open ocean species occasionally transit the coastal waters within the Santa Barbara Channel.

Fourteen species of cetaceans commonly occur within the Channel because of either their abundance, migratory pattern, or coastal habitat preference. These include Dall's porpoise (*Phocoenoides dalli*), Pacific pilot whale (*Globicephala macrorhynoa*), Pacific whitesided dolphin (*Lagenorhynchus obliquens*), common dolphin (*Delphinus delphis*), bottlenose dolphin (*Tursiops truncatus*), gray whale (*Eschrichtius robustus*) and Minke whale (*Balaenoptera acutorostrata*) (Table 1.4.1-4).

Table 1.4.1-4. Seasonal Status of Cetacean Species in the Santa Barbara Channel Area

Species	Status	Population Peak
California gray whale	Migrant	21,000; winter and spring
Blue whale	Visitor	<100; summer
Fin whale	Resident	<50; spring and summer
Minke whale	Resident	<250; spring, summer, and autumn
Humpback whale	Seasonal visitor	<50; spring, summer, and autumn
Northern right whale	Rare visitor	Unknown
Common dolphin	Resident	10,000; summer and autumn
Pacific white-sided dolphin	Resident	2,000; spring and autumn
Northern right whale dolphin	Seasonal visitor	1,000; winter and spring
Dall's porpoise	Resident	1,000; year-round
Rizzo's dolphin	Visitor	<50; summer
Pacific bottlenose dolphin	Visitor	<50; spring
Killer whale	Visitor	<50; summer and winter
Beaked whale (2 species)	Rare visitor	Unknown

Source: Chambers, 1992

The whiteside dolphin, common dolphin, and pilot whale are predominantly offshore deepwater species, but they occasionally transit the area of the lease tracts while migrating inshore during winter months or while following prey (Watson, 1981). The bottlenose dolphin, however, is predominantly a nearshore species commonly observed riding the surf or bow waves of vessels along the mainland coast of Southern California and is the most likely toothed whale (Odontoceti) to occur within the vicinity of all the lease tracts. Two baleen whales (Mysticeti), the grey whale and the Minke whale, can also be expected to transit nearshore within the Santa Barbara Channel. Minke whale favor shallow water and venture near shore more often than other baleen whales (Watson, 1981). They seem to be curious about shipping and approach moving vessels.

The recovery of the gray whale population over the past several years has been successful enough to elevate this species to "threatened" status. Approximately 17,000 whales migrate through Southern California waters twice annually, traveling from arctic feeding grounds to calving grounds off Baja and back. This 20,917-km (11,297-nm) migration is considered the longest of any mammal. Gray whales are not social animals, but they do congregate as they migrate along common routes which generally follow the coast. Point Conception is a major point from which the historic migratory path splits. Some animals choose the coastal route and move through the Channel, while others travel offshore along the outer Channel Islands route to their Baja breeding grounds. They transit the project area during their southward migration from November through January, and then again from February through May on the return north to their feeding grounds. More animals (usually females with calves) move along the coastal nearshore route in spring. They also tend to move more slowly along this route and their numbers are more concentrated. Gray whales have been observed within 91 m (300 ft) of shore. They have been seen moving through both kelp beds and sand bottom areas. They are therefore likely to transit both of the lease tracts.

- Pinnipeds. Six of the 36 species of pinnipeds known worldwide occur off the Southern California coast. Four are eared seals (Otariidae) and two are earless seals (Phocidae). Otariidae are represented by Guadalupe fur seal (*Arctocephalus townsendi*), northern fur seal (*Callorhinus ursinus*), Steller sea lion (*Eumetopias jubatus*), and California sea lion (*Zalophus californianus*).

The Steller sea lion was listed as a federally threatened species by the National Marine Fisheries Service on December 4, 1990. The Channel Islands, especially San Miguel, serve as rookeries for all of the above-mentioned pinnipeds except the Guadalupe fur seal (Table 1.4.1-5).

By far the most abundant eared seal in the Southern California Bight is the California sea lion. It is estimated that there are 74,000 animals in Southern California alone (W. Perryman, 1984, personal communication, Chambers, 1992). Three distinct populations exist and each has been designated as a separate subspecies. *Zalophus c. californianus* breeds along the west coast from Baja to the Farallon Islands off San Francisco and ranges as far north as Vancouver, British Columbia. Like Steller sea lion, California sea lion are opportunistic feeders and forage relatively close to shore when compared to fur seals. Although California sea lion use offshore islands as rookeries, they do haul out to rest on the mainland. They are commonly observed transiting the Channel individually and in groups. This is the only pinniped off California that regularly uses man-made structures such as docks, buoys, oil and gas structures, and even slow moving vessels on which to haul out. California sea lions commonly occur within the subject lease tracts and at times use mooring buoys and support vessels as haul-out sites on which to rest between foraging bouts.

Two species of earless seals (Phocidae) live and breed within the Southern California Bight: the northern elephant seal and the Pacific harbor seal. Northern elephant seal range from Alaska to Baja and breed on offshore islands from the Farallon Islands off San Francisco to San Benito Island off Baja California (Haley, 1978). During the breeding season an estimated 30,000 northern elephant seal use the Channel Islands as rookeries (W. Perryman, 1984, personal communication, in Chambers, 1992). These animals usually remain offshore foraging in deep water, only returning to shore during the breeding season and for a short time in summer months when they haul out in small groups to molt (Table 1.4.1-5).

Table 1.4.1-5. Species of Pinnipeds Found in the Santa Barbara Channel Area

Species	Status	Seasons of Maximum Abundance
California Sea Lion <i>Zalophus californianus</i>	Year-round resident	Peak numbers on land during summer breeding season on San Miguel Island.
Harbor Seal <i>Phoca vitulina richardi</i>	Year-round resident	Peak numbers on land in early summer molting season. Breeding season occurs from late February through May.
Northern Fur Seal <i>Callorhinus ursinus</i>	Year-round resident	Breeds/pups on San Miguel Island in the summer. Population on rookeries declines greatly following breeding season. Pelagic population in offshore waters augmented by migrants from the Bering Sea in winter and spring.
Northern Elephant Seal <i>Mirounga angustirostris</i>	Year-round resident	Breeds/pups on San Miguel Island in the winter. Some age classes on land in each season for annual molting.
Steller (Northern) Sea Lion <i>Eumetopias jubatus</i>	Summer visitor	No longer breeds in the area; a few adult and sub-adult males usually present on San Miguel Island and associated rocks in the summer.
Guadalupe Fur Seal <i>Arctocephalus townsendi</i>	Rare seasonal visitor	One or more adult or sub-adult males have been observed on San Miguel Island each summer in recent years.

The Pacific harbor seal is the most common and widely distributed pinniped in the world. This species is divided into five subspecies according to their distribution. The only subspecies that occurs in the project area is the eastern Pacific harbor seal (*Phoca vitulina richardi*) which ranges along the Pacific coast from Alaska to Baja California. There are an estimated 4,000 animals within the Southern California Bight. Although these animals are common and widely distributed, they do not form large groups. Pacific harbor seal maintain small (usually <100), stable local populations at haul-out sites scattered along the mainland and island coastlines. Unlike all the other pinnipeds occurring off Southern California, Pacific harbor seal maintain haul-out sites on the mainland on which they pup and breed (Rambo, 1978; Bowland, 1978). These seals are commonly observed on and along the mainland coast. There are at least six continuously inhabited haul-out sites from Point Conception to Point Dume, and probably 12 more used as occasional haul-out sites. Four major hauling grounds of the Pacific harbor seal are located directly onshore of the two eastern platforms, Heidi and Hope: Sand Point; Carpinteria State Beach; 0.3 km west of Chevron Pier, Carpinteria; and 0.1 km east of Chevron Pier, Carpinteria (Table 1.4.1-6) (Hanan, 1990).

Table 1.4.1-6. Major Hauling Grounds of the Harbor Seal (*Phoca vitulina*) Within or Near the Casitas Pier

Locations	Maximum Count Between 1982 and 1989	1989
Sand Point	11	0
Carpinteria State Beach	53	0
0.3 km West of Chevron Pier, Carpinteria	70	66
0.1 km East of Chevron Pier, Carpinteria	116	3

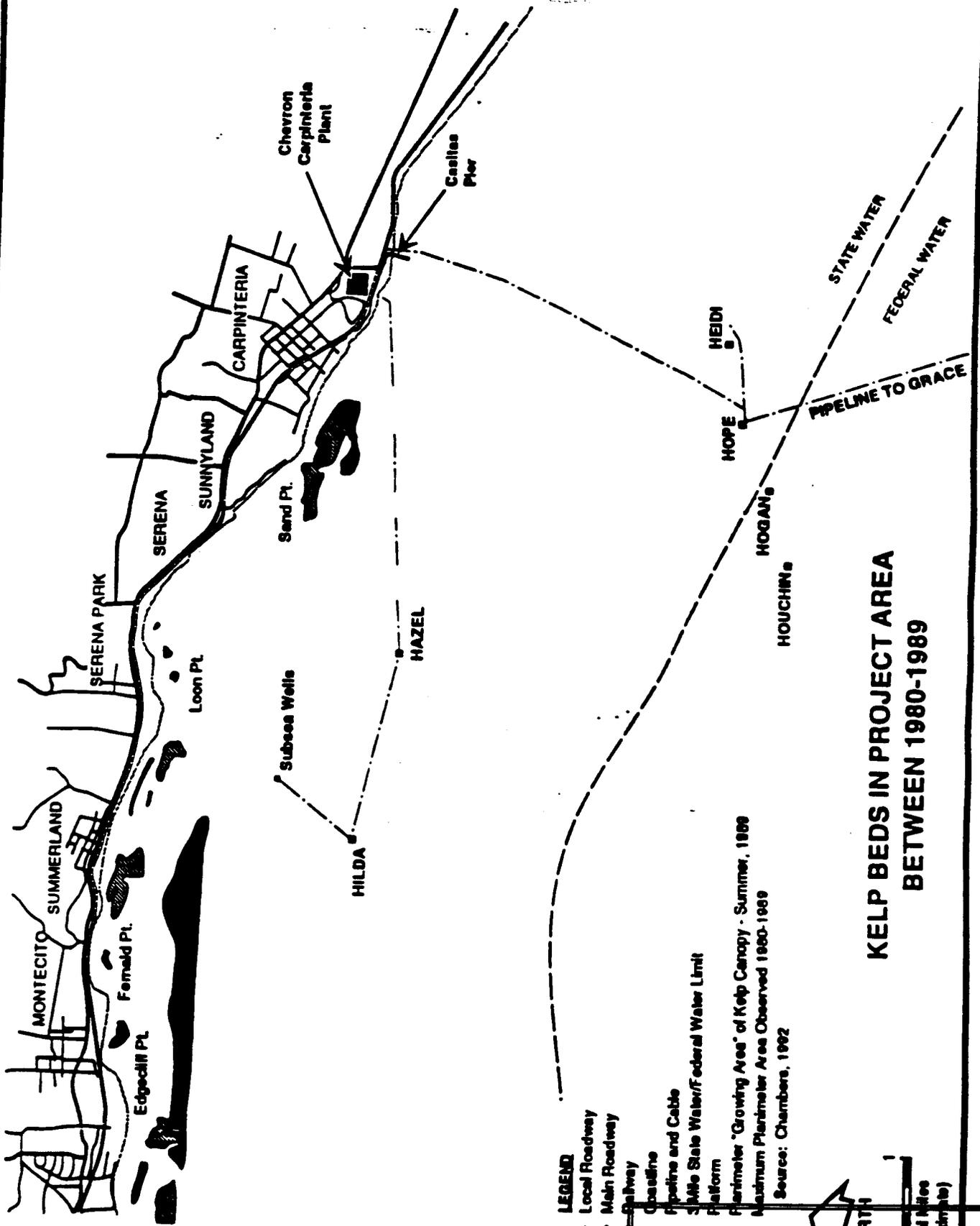
From Hanan 1990

Table 1.4.1-3 illustrates the seasonal presence of known cetaceans and pinnipeds in the Santa Barbara Channel.

- **Kelp beds.** The coastline along much of the Southern California coast has typically been fringed by large beds of giant kelp (*Macrocystis pyrifera*) (MMS, 1983). Kelp offers food, attachment sites, and microhabitats for invertebrates and provides food and shelter for fishes. Although few fish species seem to be completely dependent on kelp for survival, kelp beds probably contribute to higher fish productivity and higher standing crop. Kelp has been shown to be especially important as a refuge for young fishes (Ebeling and Laur, 1985).

In addition to the importance of living kelp as a structural and nutritional resource, drift kelp is extremely important in detritus-based food chains. Drift kelp is an important food source for such key species as sea urchins and abalone. Drift kelp also seems to be of nutritional and structural importance well beyond the limits of the kelp bed both inshore on intertidal beaches and offshore in deeper water habitats. Kelp beds between Point Conception and Ventura have historically supported the largest kelp cover in Southern California: 64 percent of the mainland kelp bed area in 1977 (Hodder and Mel, 1978).

Kelp beds along the California coast are numbered in ascending order starting at the California-Mexican border. Kelp beds 20 and 21 are found within the abandonment project area. Figure 1.4.1-1 shows the kelp beds as they were mapped in 1989. This figure also shows the maximum kelp area observed in the region between 1980 and 1989. A major "Growing Area" of the kelp is located directly offshore of Fernald Point and extends eastward nearly to Loon Point in Summerland. The width of this band spans the entire width between Platforms



LEGEND

- Local Roadway
- Main Roadway
- Railway
- Coastline
- Pipeline and Cable
- 1/2 Mile State Water/Federal Water Limit
- Platform
- Perimeter "Growing Area" of Kelp Canopy - Summer, 1989
- Maximum Perimeter Area Observed 1980-1989
- Source: Chambers, 1992

CALENDAR PAGE
MINUTE PAGE

NORTH

1
1/2
3/4
1/4
Nautical Miles
(Approximate)

**KELP BEDS IN PROJECT AREA
BETWEEN 1980-1989**

FIGURE 1.4.1-1

Hazel and Hilda. Another substantial kelp bed is found on Carpinteria Reef offshore from Sand Point directly inshore from Platforms Hope and Heidi.

Aerial surveys of kelp beds offshore Summerland were conducted on March 22, 1988 by Kelco, a commercial kelp harvesting company operating in Southern California. According to Glantz of Kelco (August 17, 1990), the kelp beds offshore Summerland have changed little in size since March 1988. The kelp beds are scattered, close to shore, and are not harvested commercially.

- **Plankton.** The term plankton refers to organisms that drift with the currents and includes the phytoplankton or drifting plants such as diatoms and dinoflagellates, and the zooplankton which are slightly mobile animals such as small crustaceans, swimming mollusks, jelly fish, and free-swimming larvae of fishes and bottom animals. Planktonic communities are characterized by patchiness in distribution, composition, and abundance (MMS, 1983).

Oguri and Kanter (1971) measured the phytoplankton productivity of the Santa Barbara Channel following the Santa Barbara oil spill of 1969. They concluded the productivity of the Santa Barbara Channel is the result of a number of factors including seasonal upwelling, runoff from land, and sewage discharges. Pattern of seasonal nutrient enrichment of the waters increase the phytoplankton populations. Coastal currents can interact with the shoreline to produce upwelling and eddies that can hold a phytoplankton population in fertile areas. Phytoplankton productivity peaks during the spring months. The high productivity values in the spring months are about five times the summer values and about ten times the low winter values.

Zooplankton are composed of members of many phyla. Holoplankton ("Entire" Drifters) spend their entire lives as floaters while Meroplankton ("Part" Drifters) generally spend their larval or juvenile phase in the plankton. Zooplankton species include many of the fishes and invertebrates important to commercial recreational fisheries that spend the early stages of their life histories in the plankton.

The most comprehensive data for zooplankton in California waters comes from the CALCOFI (California Cooperative Fisheries Investigation) program initiated in 1949. This program has shown that zooplankton tend to be extremely variable in space and time. CALCOFI data have shown that zooplankton abundance at any

given location may vary by as much as an order of magnitude from season to season and year to year (Thraillkill, 1969). The occurrence of particular zooplankton species or populations along the California coast is governed largely by currents. Long-term averages of zooplankton standing stock in the Southern California Bight show peak zooplankton abundances in the spring and summer months and lowest abundances during the winter (Kramer and Smith, 1972). Copepods, thalaceans, euphausiids, and chaetognaths usually accounted for the bulk of the zooplankton biomass in the CALCOFI samples. The most abundant fish larvae were those of northern anchovy, pacific hake, and rockfish (Kramer and Smith, 1972).

- Benthos. Twenty-two species of macroinvertebrates were collected in two trawl samples from the Carpinteria tract (3150) near platforms Hope and Heidi [water depths of 59 and 100 ft (18 and 30 m), respectively]. Eight species of algae and seagrasses (*Phyllospadix torreyi*) were also collected in the shallow-water trawl sample. The most common macroinvertebrates in both trawl samples were *Sicyonia ingentis* and the sand shrimp (*Crangon nigromaculata*) (CSA, 1985).

A diver transect survey was conducted in the hard-bottom area inshore of the platform sites. Four benthic habitat types were identified along the two transects surveyed: sand bottom; large rock outcrops with little or no attached kelp; large rock outcrops with attached kelp, interspersed with sand bottom; and small, widely scattered rock outcrops (some with attached kelp). Few macrocibiota were seen in the sand-bottom areas, but a variety of macroinvertebrates were common in the rocky habitats. Kelp was the most conspicuous alga, but other brown (*Desmarestia ligulata* var. *ligulata*) and red (*Rhodomenia* spp., *Gigartina* spp., *Scinaia articulata*) algae were common. Conspicuous invertebrates included sea urchins (*Strongylocentrotus franciscanus*) and (*S. purpuratus*); sea stars (*Pisaster brevispinus* and *P. giganteus*); the gorgonian (*Muricea* cf. *fruticosa*); and the whelk, (*Kellenia kellerii*) (CSA, 1985).

Onshore

1. Intertidal

As discussed in Section 1.1.1.3, Intertidal Surface Geology, intertidal habitat shoreward of the platform removal project area consists of rock, boulder, and sand habitat. Boulder fields are often present under sandy beaches and are alternately exposed and

covered by shifting sand. East of Fernald Point the intertidal substrate is predominantly cobble and sand with prominent rocky intertidal only at Carpinteria.

Rocky intertidal organisms tend to be distributed in bands or zones related to tidal height. The occurrence of species is based on physical and biological factors such as ability to withstand exposure to air and to survive "sanding-in" as well as competition for limiting resources, especially space. Typical dominant rocky intertidal organisms are the barnacle (*Chthamalus fissus*), blue green algae and the green algae (*Enteromorpha* spp. and *Ulva* spp.) in the upper intertidal and filamentous red algae, coralline algae and at some sites, mussels (*Mytilus* spp.) in the mid-intertidal. The low intertidal is generally dominated by surf grass (*Phyllospadix torreyi*) and feather boa kelp (*Egregia menziesii*). Brown algae (*Halidrys dioica*) is also characteristic of the low intertidal (Chambers, 1992).

Compared to the highly productive and diverse rocky intertidal, the sandy intertidal is relatively low in productivity and diversity. Sandy intertidal organisms must cope with a rigorous environment of constantly shifting sands. There is, however, a characteristic suite of organisms that are adapted to this environment and, like the marine biota of the rocky intertidal, they show a zonation related to tidal exposure. Characteristic sandy beach organisms of the project region include the sand crab (*Emerita analoga*), the bloodworm (*Euzonus mucronata*), and beach hoppers (*Orchestroidea* spp.) (MMS, 1983).

2. Unique Marine Environments

The State of California has established four categories for those areas within the State which are of special concern due to their biological importance. These categories include: (1) ecological reserves; (2) marine life refuges; (3) ecological preserves; and (4) area(s) of special biological significance (ASBS). Ecological reserves and marine life refuges have been maintained to protect marine resources previously threatened by human disturbances and the indiscriminate collection of organisms. Areas of special biological significance are those areas designated by the State Regional Water Quality Resource Board (SRWCB) (1975) which contain biological communities of such extraordinary, although unquantifiable, value that no risk of change in their environment resulting from man's activities can be acceptable (Chambers, 1992).

In addition to those categories, the United States Department of the Interior (USDOT) has established two additional categories to classify important biological environments:

(1) unique biological areas (UBA); and (2) biologically sensitive areas (BSA). Although not legally defined, these clarifications include areas that have been determined to be potentially biologically sensitive to oil and gas activities. Local coastal plans also provide a mechanism for the identification of unique environments at the county or city level.

There are 9 ecological reserves, 9 marine life refuges, and 15 ASBS between Point Conception and the U.S.-Mexican border (MMS, 1983). The unique marine environments located within the platform abandonment project area have been summarized in Table 1.4.1-7. These are considered to be exceptionally productive biological habitats, providing breeding, nesting, and foraging sites for a variety of fauna, including several endangered species. Carpinteria Marsh (El Estero), located just west of the City of Carpinteria, is the largest marsh complex (150 acres of marsh, 25 acres of mud flats, 15 acres of tidal channels) in Santa Barbara County. It has been designated as both a biologically sensitive area and an environmentally sensitive habitat, and researchers have identified over 120 species of birds which utilize the marsh. It is also habitat for two endangered species of avifauna; the light-footed clapper rail and Belding's savannah sparrow, as well as a population of the endangered plant, salt marsh bird's beak (Chambers, 1992).

Table 1.4.1-7. Unique Marine Environments within the Eastern Santa Barbara Channel Region (adapted from: USDOL, MMS, 1983; Science Applications, Inc., 1984; Westec Services, Inc., 1984; Woodward-Clyde Consultants, 1984)

Carpinteria Marsh (El Estero)	BSA: SBC and CC environmentally sensitive habitat; extensive marsh/estuarine habitat; intense avifauna utilization, including endangered light-footed clapper rail and Belding's savannah sparrow; salt marsh bird's beak plant also present.
Casitas Pier (Chevron Pier)	BSA: SBC and CC environmentally sensitive habitat; haul-out and rookery area (Harbor Seal).
Carpinteria Reef	SBC and CC environmentally sensitive habitat; rocky intertidal and subtidal habitat.

BSA: biologically sensitive area
 CC: City of Carpinteria
 SBC: Santa Barbara County

Southern California coastal wetlands, such as the Carpinteria Marsh, provide four critical habitat functions for migratory waterfowl and shorebirds:

- They furnish wintering waterfowl and shorebirds with sufficient food, rest, and space to minimize natural mortality through the fall and winter months.
- They return adequate numbers of healthy birds to the breeding grounds to insure maintenance of Flyway population levels.
- They provide spring and fall migration habitat for birds wintering in Southern California and Mexico.
- They provide "back-up" habitat during dry years when the Central Valley habitat is minimal.

Wetlands also provide excellent habitat for juvenile fishes because of their warm, calm conditions, high food supply, and protection from predation by larger fishes (Currin, et al., 1984; Boesch and Turner, 1984). Thus, a number of fish species including topsmelt and diamond turbot use coastal wetlands as nurseries. Shallow coastal embayments seem to be particularly important for California halibut. This important sport and commercial species which uses coastal wetlands as a nursery area appears to have declined as a result of lost wetland acreage (Onuf and Quammen, 1985; Kramer, 1990).

Endangered/Threatened/Candidate Species

This section discusses species within the region of the proposed platforms and associated pipelines which have been listed by the federal government of the State of California as Endangered or Threatened or which have been proposed as candidates for listing.

1. Plants

One plant species, the salt marsh bird's-beak, (*Cordylanthus maritimus* ssp. *maritimus*), has been listed as endangered by both the State of California and by the federal government. The salt marsh bird's-beak has become endangered primarily through the loss of its salt marsh habitat. Carpinteria salt marsh is the northwestern limit of occurrence for this plant (Ferren, 1985).

2. Fishes

There are no marine fish species within the platform and pipeline removal/abandonment area which are listed by the state or federal government as threatened or endangered.

3. Birds

Several listed bird species inhabit the offshore and onshore areas surrounding the platforms and pipelines.

- **California Brown Pelican (*Pelecanus occidentalis californicus*).** The California brown pelican was listed in 1970 and 1971 by the U.S. Fish and Wildlife Service and the California Fish and Game Commission following several years of pollutant-related (DDT) reproductive failures (Schreiber and De Long, 1969; Keith, et al., 1971; Risebrough, 1972; Gress and Anderson, 1983). Although population levels have gradually recovered from the effects of DDT, the subspecies retains its endangered status due to its low reproductive rate and small U.S. breeding population. Within California, brown pelicans only nest on the Channel Islands; however, they are classed as relatively common year-round visitors to the nearshore waters of Santa Barbara and Ventura County (Lehman, 1982; Webster, et al., 1980). Peak abundance occurs July through December when migrants from Mexico are present.

Brown pelicans forage in the nearshore environment out to about 20 km (12 miles). They locate prey while flying and then plunge from the air to capture the prey underwater. This requires clear waters for prey location, as they feed almost exclusively on near-surface schooling fish. Pelicans commonly occupy offshore platforms as daytime roosting sites.

- **Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*).** The Belding's savannah sparrow has been a California State-Listed Endangered subspecies since 1974 and a Category 2 candidate for federal listing. It is one of four savannah sparrows that inhabit a wide variety of grassland, tundra, mountain meadow, and marsh habitats throughout north and central America. In addition to the Carpinteria Marsh, breeding occurs at Goleta Slough, Oxnard Beach, and McGrath State Park.

- **Light-Footed Clapper Rail (*Rallus longirostris levipes*).** The light-footed clapper rail is designated as an endangered species by the federal government and the State of California. Preferred habitat is tidal salt marshes with extensive growths of cord grass or pickleweed (Massey, et al., 1984). Censuses taken between 1980 and 1988 indicate that this species occurs in the central coast only in Carpinteria Marsh and Mugu Lagoon (Chambers Group, 1992).
- **Snowy Plover (*Charadrius alexandrius nivosus*)** - The coastal breeding population of the snowy plover is severely depleted and was listed as threatened by the Federal government on March 5, 1993. This small shorebird nests on large expansive sandy areas and forages on sand flats or intertidal mudflats. In addition to the Carpinteria Marsh, the snowy plover nests near the mouth of the Santa Clara River, on Ormond Beach, on McGrath State Beach, and at Mugu Lagoon between mid-March and the end of July (Page and Stenzel, 1981). Snowy plovers are commonly seen around the sandy beaches at the mouths of Devereux and Goleta Sloughs during the winter migration (Chambers Group, 1987).

4. Marine Mammals

- **Cetaceans.** The cetacean fauna of Southern California waters includes six species of whales that are listed as endangered and one as threatened by the federal government. Endangered species include: the blue, fin, sei, humpback, the northern right whale, and the sperm whale. As a result of population growth stemming from decreased fishing pressure, the status of the California gray whale was changed from endangered to threatened in 1992. All except the sperm whales occur seasonally in the SBC. Sperm whales are found almost exclusively in deeper offshore waters beyond the continental shelf.

Location of sightings of whales recorded on BLM-OCS surveys conducted from 1975-1978 indicate that only the California gray whale would be expected in the nearshore waters of the platform removal project area.

- **Pinnipeds, Fissipeds (Sea Otters), and Reptiles (Sea Turtles).** The pinniped species found in the SBC that are designated as rare, threatened, or endangered on state or federal lists are the Steller (northern) sealions (*Eumatopias jubatus*) and Guadalupe fur seal (*Arctocephalus townsendi*), both federally and state listed threatened species. Guadalupe fur seals presently breed only on Isla de

Guadalupe, Baja California, Mexico. The Guadalupe fur seal would not be expected in the nearshore waters of the platform removal project area.

Although Ano Nuevo Island has the largest breeding population of Steller (northern) sea lions south of Alaska (Loughlin *et al.*, 1984), the numbers of this species have been declining throughout their range over the last 30-year period. Due to their rapid decline, NMFS on November 6, 1990 listed the Steller sea lion as a threatened species (55 FR 49204) with an effective date of the final rule on December 4, 1990. These sea lions presently breed almost exclusively on offshore rocks to the northwest of Ano Nuevo Island. The Steller sea lion is a summer visitor and no longer breeds in this area. A few adult and sub-adult males are usually present on San Miguel Island and associated rocks in the summer.

The southern sea otter was federally listed as a threatened species under the Endangered Species Act in 1977. The subspecies presently occurs only in nearshore waters along the central California coast between Año Nuevo Point near San Francisco, to the mouth of the Santa Maria River, located about 17.6 km (11 miles) south of Pismo Beach. Numbers of sea otters outside the range are low and no specific locations of preferred use have been identified. Because this population is susceptible to devastation by an oil spill, the U.S. Fish and Wildlife Service began a program in 1987 to transplant up to 250 otters from central California to San Nicholas Island. This program appears not to have been successful.

Wanderers from the established sea otter range have been reported from Cape Mendocino in northern California to Point Loma near San Diego. Numbers of sea otters outside the range are low. Otters have been reported within the platform removal area, but in low numbers. Impacts to sea otters from project operations are anticipated to be less than significant.

Platform-Specific Setting

Offshore Flora and Fauna

1. Avifauna

The most common avifauna observed at the platforms are the western gull (*Carus occidentalis*), cormorants (*Phalacrocorax spp.*), and the brown pelican (*Pelecanus*

occidentalis). These species and others frequently use the crossmembers below deck and the helipad above deck as perching and sunning areas.

2. Fishes

In addition to providing substrate for biofouling communities, the platforms also attract a diverse assemblage of fish species. Studies have been conducted in recent years based on catch results of the Santa Barbara party vessel sport fishery and from diving observations. Results indicate that there are between 16 to 60 times more fish beneath the platforms as compared to adjacent areas (Simpson, 1977). While there is a definite link between platforms and higher fish populations, based on study results, there is considerable variation between platforms on fish species encountered. The primary factors involved in distribution are, predictability, distance from shore, water depth, kelp abundance, and height and surface area of substrate.

According to personal communication with Milton Love (Feb. 1993), the locations with the highest number of fish count per unit of effort (defined as number of fish taken per angler hour) for kelp bass (*Paralabrax clathratus*) in California are at platforms Hilda and Hazel. Results from this study are based on census data collected during a 4-year random party boat survey conducted in the mid-1980's by the California Department of Fish and Game. No other data from this study is available at this time.

In Love and Westphal (1990), catch results from the sportfishing vessel *Hornet* were analyzed. Platforms visited by the *Hornet* were A, B, Hillhouse, Houchin, and Hogan. Each of these are in federal waters contiguous with the 3-mile State water boundary. Results indicated that rockfishes (*Sebastes*, sp.) predominated at all platform sites in both species numbers and abundance, comprising 8 of the 10 most frequently taken species. According to Love's as yet unpublished study, kelp bass, the dominant fish species taken at the much closer to shore Hazel and Hilda, were also present at the outer platforms but in lesser numbers (3.4 percent of total caught) (Table 1.4.1-8). The lower percentage of *P. clathratus* at the outer platforms is probably due to their relatively extreme depth. Hillhouse is located in 192 feet (59 m), below the 46 m maximum depth of *P. clathratus* (Eschmayer, et al., 1983).

Table 1.4.1-8. Fishes Taken by a Sportfishing Party Vessel Around Oil Platforms Near Santa Barbara

Common Name	Species	Total Length (mm)	Number Caught	% Total
Oil Platforms¹				
Olive rockfish	<i>Sebastes serranoides</i>	270.0	831	30.3
Widow rockfish	<i>Sebastes entomelas</i>	265.4	420	15.3
Chub mackerel	<i>Scomber japonicus</i>	358.3	283	10.3
Canary rockfish	<i>Sebastes pinniger</i>	238.8	191	7.0
Brown rockfish	<i>Sebastes auriculatus</i>	269.1	193	6.7
Picaccio rockfish	<i>Sebastes paucispinis</i>	260.8	147	5.4
Vermillion rockfish	<i>Sebastes miniatus</i>	262.1	143	5.2
Blue rockfish	<i>Sebastes mystinus</i>	243.0	128	4.7
Kelp bass	<i>Paralabrax clathratus</i>	318.5	92	3.4
Squarespot rockfish	<i>Sebastes hopkinsi</i>	213.2	60	2.2
Copper rockfish	<i>Sebastes caurinus</i>	260.2	60	2.2
Yellowtail rockfish	<i>Sebastes flavidus</i>	255.9	59	2.2
Lingcod	<i>Ophiodon elongatus</i>	490.2	17	0.6
White croaker	<i>Genyonemus lineatus</i>	294.6	16	0.6
Jack mackerel	<i>Trachurus symmetricus</i>	226.5	15	0.6
N/A	<i>Sebastes dalli</i>	157.1	14	0.5
Halfmoon	<i>Medialuna californiensis</i>	259.2	13	0.5
Barred sand bass	<i>Paralabrax nebulifer</i>	455.2	12	0.4
Flag rockfish	<i>Sebastes rubrivinctus</i>	238.7	12	0.4
Rosy rockfish	<i>Sebastes rosaceus</i>	213.4	10	0.4
Starry rockfish	<i>Sebastes constellatus</i>	280.0	5	0.2
Pacific bonito	<i>Sarda chiliensis</i>	512.5	4	0.2
Pacific sanddab	<i>Citharichthys sordidus</i>	208.7	3	0.1
Blacksmith	<i>Chromis punctipinnis</i>	290.0	2	0.1
California scorpionfish	<i>Scorpaena guttata</i>	219.0	2	0.1
Cabezon	<i>Scorpaenichthys marmoratus</i>	362.5	2	0.1
Spiny dogfish	<i>Squalus acanthias</i>	989.5	2	0.1
N/A	<i>Sebastes umbrinus</i>	147.0	2	0.1
Total			2,728	

All fish surveyed off Santa Barbara aboard the sportfishing party vessel *Hornet*, April 1975-April 1978, around the oil platforms (A, B, Hillhouse, Houchin, and Hogan).

¹ No. trips = 15; No. anglers = 352; No. hours fished = 47.0; Effort = 8,251 angler hours; CPUE = 33 fish per angler hour; H² = 1.03.

Source: Love and Westphal, 1990.

Love and Westphal's results conflict with an earlier study conducted by Simpson in 1976. According to Simpson, the species seemingly most abundant at Hilda and Hazel was the olive rockfish (*Sebastes serranoides*). Study team divers estimated seeing as

many as 4,000 per platform per visit, at depths ranging from surface levels to 80 feet (24 m). Three other species of notable abundance were the white surfperch (*Phanerodon furcatus*), blue rockfish (*S. mystinus*), and brown rockfish (*S. auriculatus*). Members of these species were also found at almost all depths in the water column. With only a few exceptions, all rockfish taken around the platforms were juveniles. A difference in species composition was also noted between the platforms and natural reefs. Much of the differences came from the relative abundance of high-relief substrate-associated rockfish (such as *S. constellatus* and *S. rubrivinctus*) over the reefs and their near absence around the platforms. The substrata around these structures are composed of a mixture of drill cuttings and shells which have broken off the platform pilings. This does not appear to be suitable habitat for many rockfish species (Love, Westphal, 1990).

3. Biofouling Organisms

A single platform in 96-137 feet of water may add 1 to 2 acres of hard substrate. The submerged portion of platforms, or jackets, are covered with biofouling organisms requiring suitable substrate for metamorphosis to adulthood. Over time the jackets support complex invertebrate communities. Shells of primary fouling organisms provide surface of attachment for secondary organisms. These organisms create hiding places for small fish and invertebrates, form the base for a highly complex food chain, and provide excellent breeding grounds (Scarborough-Bull, 1989, Driessen, P., 1989).

In his study of Platforms Hazel and Hilda in 1976, Simpson indicated that the California mussel (*Mytilus californianus*) and various starfishes of the genus *Pisaster* (*P. andochraceous* and *P. giganteus*) were found at all depths on the platforms and on the cuttings pile below, though they rarely occur at these depths on the rocky coast. In addition, the sizes of the specimens encountered were unusually large. Two studies of other vertical sea structures have revealed similar results: extended depth ranges for several intertidal organisms and unusually large mussels and starfishes (Chan 1973; Paine 1976).

While mussels appeared to dominate the platform fouling communities in terms of total weight, the anemone, *Corynactis californica*, seemed to be the most abundant of the attached animals. Divers estimated that clusters of these anemones covered 70 to 80 percent of the space available on the platforms at depths below 50 feet. Another anemone, *Epicactus prolifera*, was present in great numbers on Hilda but was rarely

seen on Hazel. Divers in this survey reported that this was the only obvious difference in the animal communities of the two structures.

Over 200 invertebrate species were found on or near platforms Hazel and Hilda, including purple sea urchins (*Strongylocentrotus purpuratus*), hydroids (Fam. *hydrozoa*), nesting clams, rock scallops, and jingle shells (Simpson, 1977). Various crabs and shrimp species were also seen.

4. Benthos

While the cuttings piles beneath the platforms were originally devoid of sea life, shell accumulation provided an uneven substrate surface suitable for further invertebrate life. Invertebrates living on the cutting piles beneath Hazel and Hilda included anemones, crabs, sea cucumbers, and numerous species of starfishes and batstars (Simpson, 1977).

In a study of polychaetes (worms that live on and in the seafloor), grab sampling of bottom sediment near Hazel revealed that the number of species present near the platform was typical for the open coast region. The effect of the platform was to increase the numbers of tube-dwelling worms. Polychaetes near the platform (filter-feeders in particular) may have been benefiting from the continuous "rain" of eggs, waste, and other biological material from the organisms living above them on the platform. Abundant species found within the immediate vicinity of the platform were *Trochochaeta franciscanum* and *Diopatra ornata*.

Onshore Flora and Fauna at Pipeline Landfall

The Hazel and Hilda pipeline landfall consists of predominately rocky intertidal with sandy beach habitat. The intertidal organisms discussed in Offshore Flora and Fauna above, provide a description of organisms likely to be encountered at the pipeline landfall locations.

Offshore Flora and Fauna Impacts

Prior to initiating abandonment operations, a survey will be conducted of the seabed within a 1,000 foot radius of the platforms. All sensitive bottom features, including pipelines, rocky outcrops, and kelp beds will be noted during the survey. These areas will be noted on applicable navigation charts and no anchors will be placed in the areas. Impacts to offshore flora and fauna will be directly related to physical disturbances associated with the

removal of the platform jackets and caissons and with pipeline capping. Physical disturbance of the bottom sediments associated with removal of the structures will directly encompass the area occupied by the structures themselves. As indicated in Section 2.4.5 of the Execution Plan, explosive charges will be utilized for the cutting of anchor piling and conductors on platforms Hope, Heidi, and Hilda. Figure 1.4-1 details the placement of explosive charges for conducting pile cutting operations. Further, the bottom will be disturbed by materials and derrick barge anchors. Please refer to Section 1.1.2.1 of the Project Description for a discussion of typical anchor spreads and placement procedures. The majority of the literature reviewed has been generated about abandonment operations where explosives are used within the confined areas of piles and conductors. Such literature has been generated predominantly from abandonment operations in the Gulf of Mexico.

Jacket Removal: All Platforms

1. Avifauna

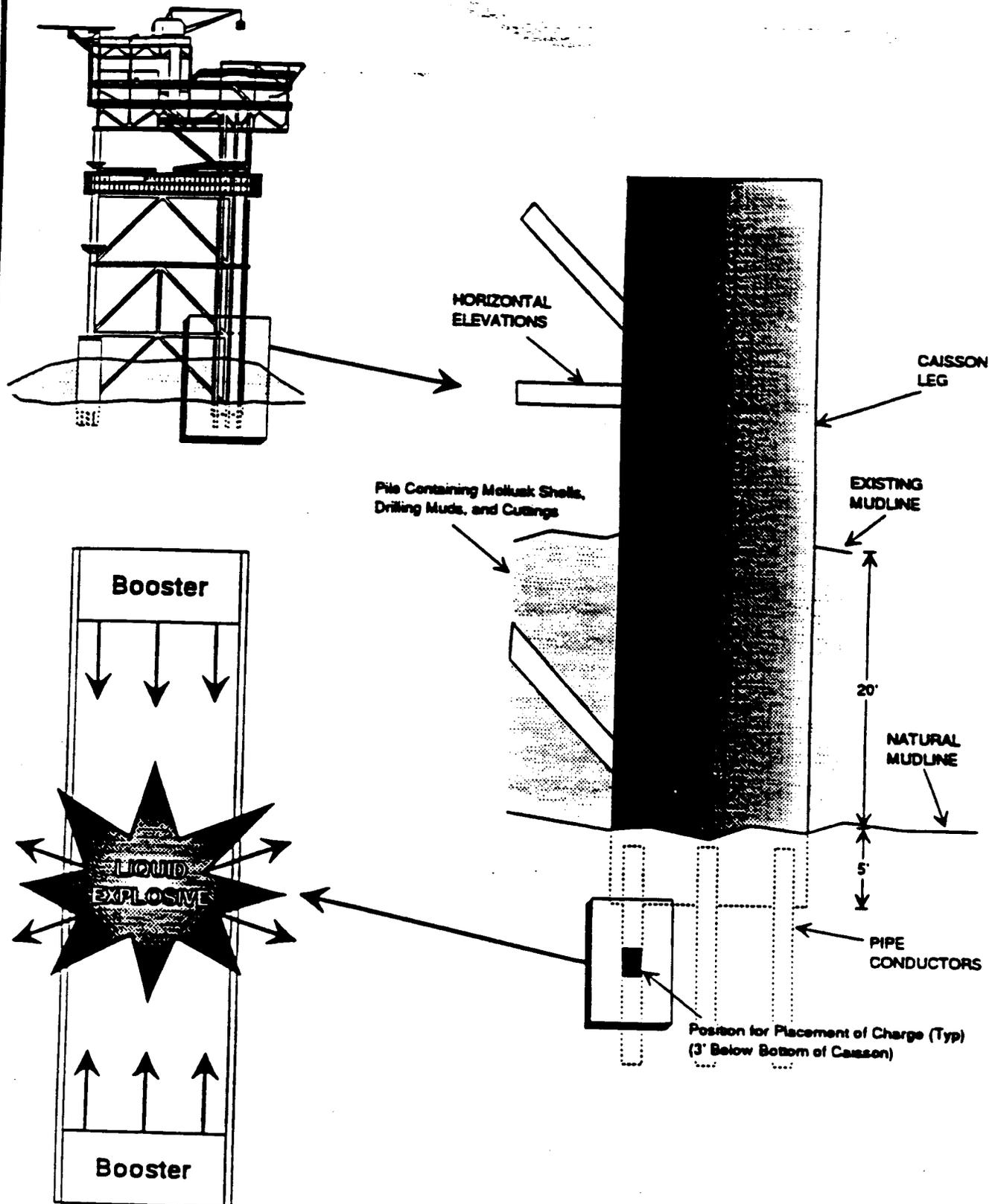
Seabirds are accustomed to perching on and foraging from platforms and are extremely tolerant of human activity. Most seabirds will likely remain at the platforms during most of the platform removal process and will only relocate to other habitat during periods of physical activities at the platform site and upon the complete removal of each platform. Seabirds are highly mobile and are capable of avoiding disturbances in the offshore project area for the duration of the removal activities. Therefore, short-term impacts to seabirds during removal activities would be less than significant.

Long-term impacts would result from loss of perching and foraging habitat. However, the four platforms under study represent only a small portion of the offshore habitat available to seabirds. Removal of this habitat would result in less than significant impacts.

Waterfowl, which normally utilize the waters as resting areas during migratory periods, would easily be able to avoid removal activities. No injuries, mortalities or long-term effects are anticipated.

2. Fishes

- **Pelagic Fish.** Short-term impacts on pelagic fish located within a several hundred meter radius of the platforms may be significant due to concussive impacts from



**DETAIL OF EXPLOSIVE CHARGES
FOR CONDUCTOR/PILE CUTTING OPERATIONS**

MINUTE PAGE	690
MINUTE PAGE	3304

FIGURE 1.4-1

subsea explosions. Between 32 and 40 individual charges each containing between 25 to 45 pounds of explosive material will be detonated per platform. Explosive cutting operations will be conducted over three to four day periods per platform. Prior studies have indicated that fish remaining in the zone nearby the platforms upon detonation receive impacts which include mortality, perforated air bladders, and lung hemorrhage (Klima, et al., 1989; Baxter, et al., 1982). The exact relationship between fish mortality and distance from charge has not been conclusively determined. The maximum discharge from project explosives will emit less than one fourth the percussive pressure as the sample case because those explosions took place within the water column, while those for this project will be inside the casings and below the mudline. Therefore, the mortality radius will be correspondingly narrower. The explosive impacts will be confined to the immediate area of the platform. Impacts associated with the detonation will be significantly reduced by the fact that the explosives will be set off approximately 8 feet below natural mudline and significantly deeper than the existing mudline within the existing casing. In addition, all detonations will be staggered, which reduces the maximum pressure generated by the explosions (Connor, 1990). Impacts to the overall pelagic fish populations are determined to be less than significant due to factors such as: lack of endangered, threatened, or candidate fish species; relatively small percentage of fish taken by explosive charges (less than 20 fish per charge); and mortality reduction measures incorporated into the project.

As noted in the initial study, a number of measures will be undertaken to avoid impacts to marine mammals. These measures include delaying detonations until no marine mammals are observed within 1,000 yards of the platform. The remaining impact to marine mammals, according to the National Marine Fisheries staff, may reach harassment levels for which a permit may be required. Although impacts to pelagic fish will be minimized through the use of smaller charges detonated on a staggered timetable, there will be an unavoidable "incidental take" of fish located within the immediate zone surrounding the platforms (Goertner, 1981; Goertner, 1982). To reduce the potential of impacting marine birds and mammals attracted to the platform area to feed on fish killed by the explosion, mitigation measures will include the removal of all observed fish, either damaged or killed immediately following detonation operations.

All of the explosives will be detonated below natural mudline inside on the casing. Therefore, discharge will result in short-term, localized turbidity for the 3- to 4-day duration, per platform, from the piling and conductor severing operations. Anchor mooring of materials and derrick barges will also create localized, short-term turbidity impacts. Reduced visibility within the region of the turbidity plumes will force the fish to relocate to undisturbed areas for feeding. As all pelagic fish are extremely mobile, turbidity impacts from removal operations are anticipated to be less than significant. No other short-term project operations will have any measurable impacts to pelagic fish.

Long-term impacts of platform removal would include loss of habitat, foraging grounds, shelter, and support for numerous other forms of marine life. While numerous studies have provided evidence that oil platforms are major pelagic fish attractors, there has been no evidence indicating platforms in shallow waters increase productivity. The removal of the four platforms under study would result in the loss of a portion of the habitat available to pelagic fish within the Santa Barbara Channel. However, pelagic fish are highly mobile and there is an abundance of natural reefs and other platforms within the area that provide similarly suitable habitat. In addition, fish species congregating around the platforms are known to exhibit considerable transiency, as documented by the findings of Simpson (1977) and Love (personal communication, 1993). Therefore, the removal of habitat is projected to have less than significant impacts to the pelagic fish populations in the Santa Barbara Channel.

• Demersal Fish. Short-term platform abandonment and removal procedures will result in impacts similar to those described for pelagic fish. Mortality of individuals will occur within a several hundred meter radius surrounding each platform. Impacts to the overall demersal fish community are anticipated to be less than significant for the same reasons provided for pelagic fish species: lack of endangered, threatened, or candidate fish species; relatively small percentage of fish taken by explosive charges; and mortality reduction measures incorporated into the project.

Long-term impacts would result in a decrease of prey at former platform locations. However, most demersal fish are able to leave the area once they have been disturbed, such as by suspended sediments, and would most likely be able to find similar habitat. The brief duration of any disturbances along with the small area

impacted should result in insignificant impacts. The localized disturbances on prey items should also have an insignificant impact.

3. Marine Mammals

The primary agents that may impact marine mammals during the 4- to 5-month platform removal period would be percussive impacts from explosives detonations, increases in turbidity, vessel traffic, and noise. While removal operations will be timed to avoid critical cetacean migratory periods, resident pinnipeds are expected to periodically frequent the platforms' vicinities. Physical presence of work boats, barges, and other associated vessels and personnel, however, will likely be a factor in causing most marine mammals to avoid the immediate platform areas. A mitigation monitoring plan is included as Appendix F to ensure implementation of mitigation measures designed to reduce impacts to marine wildlife. The use of a helicopter or surface vessel is considered to be a suitable alternative to observers located on the platform. All vessel operators will be properly briefed on procedures designed to reduce impacts to marine wildlife. In addition to the above factors which will inadvertently serve to protect marine mammals from injury and/or mortality from explosives, the following standardized conditions will be incorporated into project operations:

- An observer located on abandonment vessels will monitor the area prior to, during, and after detonation of charges;
- Detonation will be delayed until any marine mammals observed within 1,000 yards [914 m] are certain to have vacated the area;
- Detonation will only occur during daylight hours to facilitate visual monitoring;
- Pre- and post-detonation surveys by divers, including recovery of any injured or dead fish, which might attract marine mammals, will be conducted; and
- Staggering of detonations will reduce the maximum pressure generated by the explosions.

In addition to the above standardized procedures, the following measure will further reduce the risk of having any marine mammals within mortality or injury range of the platforms during detonation periods:

-
- A killer whale sonic warning system which emits sounds nearly identical to those emitted by "killer whales" will be placed in the waters near the platforms prior to blasting. The killer whale is a natural predator of pinnipeds and the sounds emitted from the warning system will serve to scare off any pinnipeds in the area.

Under the auspices of the Endangered Species Act, after a threshold examination has been conducted by the appropriate federal agency (USFWS or NMFS) to determine if a "may affect" situation exists, the appropriate Service issues a biological opinion to the requesting agency. If the consultation and biological opinion conclude that the agency action will harm endangered species or offers reasonable and prudent alternatives that would prevent potential harm, the agency may issue an "incidental take statement," which specifies the impact of the take (number of individuals), delineates the reasonable and prudent measures to be taken, and sets forth terms and conditions under which the activity must be conducted (16 U.S.C. 1536(b)(4)). At this point it has been determined that no marine mammals will be injured or killed by this project, but that the use of explosives as described may constitute "harassment," and if so, a permit for which application will be made.

The Marine Mammal Protection Act generally places a moratorium on the taking of any marine mammals, but provides several specific exceptions to the prohibition. The exception relevant to rig removal is found at Section 101(a)(5) of the Act, which allows for the incidental take of small numbers of marine mammals during an activity other than commercial fishing if the proposed take will have a negligible impact on the affected species or stock.

Adherence to the aforementioned standards and procedures should eliminate the risk of injury and/or mortality to all marine mammals. Therefore, under CEQA, the short-term impacts to marine mammals from platform removal are anticipated to be less than significant.

Vessel traffic impacts to marine mammals are discussed in detail in "Offshore Impacts" of Section M, Transportation/Circulation; noise impacts are discussed in "Offshore Impacts" of Section F, Noise. However, these items are also discussed below as they relate to marine mammals in general.

Turbidity resulting from explosives detonation and anchor mooring will result in only minor localized avoidance impacts since coastal marine mammals are normally exposed to some turbid water conditions. Harbor seals and California sea lions may temporarily

seek nearby areas if turbidity hampers their ability to forage. Blue, fin, and humpback whales are sometimes found in deeper, relatively clear pelagic waters and therefore would not be affected by platform removal. As the explosive charge portion of project operations will occur outside the gray whale migration window, gray whales will not be affected by localized turbidity associated with this component. Toothed whales, i.e., Pacific white-sided dolphin, common dolphin, occur in the vicinity of the platform-removal areas but are not likely to be adversely impacted by increased turbidity (Little, 1985).

Dismantlement equipment such as cranes, compressors, welding equipment, barges, and boats would all constitute noise sources that would likely impact cetaceans. Noise can cause impacts to gray whales and other cetaceans. However, only the loudest industrial noises have been reported to affect gray whale behavior (Malme, et al., 1983). Gray whales have acclimated somewhat to human activity since they are commonly observed near urbanized areas of Los Angeles (MMS, 1984) as well as in the Santa Barbara Channel amid boat traffic, production, and exploratory activities. Impacts to gray whales are classified as insignificant.

Noise generated from crew and tug boats, derrick barges, etc., are expected to cause insignificant impacts to pinnipeds. Project-generated boat traffic will be of short duration and barely perceptible above existing levels.

4. Kelp Beds

Prior to initiating abandonment operations, a survey will be conducted of the seabed within a 1,000 foot radius of the platforms. All sensitive bottom features, including pipelines, rocky outcrops, and kelp beds will be noted during the survey. These areas will be noted on applicable navigation charts and no anchors will be placed in the areas. In addition, all vessels associated with the project will transit within designated corridors. Abandonment of the platforms will have no impact on the kelp bed community. Kelp beds located several hundred yards inshore of Hazel and Hilda do not rely on the platforms for substrate or protection. Due to water depth, no kelp beds are located nearby Platforms Hope and Heidi. Therefore, jacket removal would have no impact to nearby kelp beds.

5. Plankton

Platform removal will result in elevated turbidity levels which will have little impact on the phytoplankton community; turbidity plumes are not expected to reach the euphotic zone and impact the phytoplankters. Elevated suspended sediment levels in the water column could adversely affect the feeding abilities of zooplankters near the bottom, but the duration would be short and magnitude localized so that impacts would be insignificant. Previous studies have indicated that platform removal will not have a measurable impact.

6. Benthos

- **Organisms on Seafloor.** Benthic organisms within the immediate region of the conductors, pilings, and external legs will undergo considerable damage and/or mortality as a result of the platform removal operation. Impacts will be greater to these immobile organisms than to mobile organisms able to evacuate the removal area. Impacts to benthic organisms will be less than significant, however, due to the relatively small percentage of overall benthic organisms that will be disturbed from the removal operation.

As discussed in the Offshore Impacts section of "A. Geology" of the Project Description, the bottom will be disturbed by the anchors of the platform removal derrick barge and materials barges. Anchors are not dragged on the bottom, but will create a disturbance while they are digging in. This activity would disturb and temporarily eliminate epibenthic and infaunal organisms where the anchors and anchor chains contact the seafloor. The number and size of anchor scars depend on several variables, including bottom current speeds, character of bottom sediments, distance along which the anchor is dragged, type of anchor, and method of placement (SLC, 1986). All anchors will be deployed vertically from the barge or from anchor assist vessels (workboats). A correctly placed anchor typically results in a disturbance of about 35 feet (Chambers, 1986). Organisms in the area of the anchor scars would be eliminated and the local bottom topography altered. Organisms recolonizing the anchor scar might differ from those in the surrounding undisturbed benthic community due to differences in sediment character. Localized increases in turbidity would also be caused by the movement. Therefore, impacts to seafloor benthos would be adverse but less than significant.

- **Biofouling Organisms on Platform Jackets.** Removal of platform caissons, legs, and subsea bracing would disrupt and/or eliminate many benthic invertebrate organisms. Encrusting organisms directly attached to the jacket would, unless incidentally scraped off during platform removal and subsequent transport to land, likely remain attached to the platform indefinitely. Marine growth located on the jacket legs and subsea bracing will be removed with hydroblasting equipment at all cut locations. Removal from water and hydroblasting will result in direct invertebrate mortality. Increased standing crop on platform legs and cross members, used as new substrate for attachment of epibiota, will be lost as the structures are removed. This loss, although resulting in a return to conditions which extended prior to construction, can be considered an adverse but insignificant impact.

Other encrusting organisms, existing on the accumulation of shells atop the cuttings piles, would likely be damaged by the physical removal of the jackets. Caisson removal would leave open pits on the seafloor and alteration of the cuttings piles would occur. As a result, benthic organisms and other invertebrates on cuttings piles would be eliminated and/or dislodged from their substrate. These impacts would be confined to localized regions. Due to the relative abundance of this resource, no significant impacts will occur.

7. Endangered/Threatened/Candidate Species

Removal of the proposed platform jackets is not anticipated to pose any significant impacts to any endangered, threatened, or candidate species. As indicated above, preventative measures incorporated into the project will serve to reduce impacts to endangered marine mammals to levels of insignificance. The only avian species that would be affected in the long term would be the California brown pelican as they use the platform crossmembers for resting and perching areas. The platforms scheduled for removal, however, comprise only a small portion of the available offshore roosting areas. Therefore, impacts to the California brown pelican will be less than significant. The California gray whale, a federally listed threatened species will not be impacted as the timing of the explosive charge portion of the removal schedule will occur completely outside their migration window, roughly between December and May.

Offshore Pipelines and Cable

1. Avifauna

As discussed in Subsection 1, "Avifauna," seabirds and waterfowl are extremely tolerant of human activity, are highly mobile, and are capable of avoiding disturbances in the offshore project area for the duration of the removal activities. Impacts to avifauna from offshore pipeline and cable abandonment would be less than significant.

2. Fishes

- **Pelagic Fish.** Impacts to pelagic fish from offshore pipeline and cable abandonment would be less severe than those described for platform jacket removal in that no explosives will be used during this portion of the operations. Due to the highly mobile nature and abundance of habitat of pelagic fish, impacts will be less than significant.
- **Demersal Fish.** Impacts associated with the abandonment of the offshore portions of the pipelines and cable would be less severe than those described for platform jacket removal in that no explosives will be used during this portion of the operations. Impacts should be insignificant due to the short duration of pipeline abandonment operations and the relatively small area of the soft benthic habitat involved.

3. Marine Mammals

Impacts to marine mammals associated with the abandonment of the offshore portions of the pipelines and cable would be similar, with respect to turbidity and noise, to those described for platform jacket removal. Disturbance of bottom sediment and resuspension of sediments may affect feeding activities of pinnipeds or small cetaceans causing local insignificant impacts (Little, 1985). Impacts to cetaceans and pinnipeds from pipeline abandonment are projected to be short-term and less than significant.

4. Kelp Beds

Abandonment of the offshore portions of the subsea pipelines and cables would have no impact on local kelp bed resources, as described for platform jacket removal

operations. There are no kelp beds within the immediate vicinity of the proposed operations.

5. Plankton

Impacts to phyto- and zooplankton would be similar to those described for platform jacket removal. Due to the short duration and localized magnitude of pipeline and cable abandonment activities, impacts to plankton would be less than significant.

6. Benthos

Impacts to benthic organisms on the seafloor will occur from pipeline/cable separation from platform, capping, and end burial activities. Benthic organisms within the immediate vicinity of the pipeline/cable ends will likely be entrained within the suction of diver held-hand jets. Localized impacts will also occur near the jetting area as displaced bottom sediments settle onto immobile benthic organisms. These impacts will be very localized, short-term and thereby not significant.

7. Endangered/Threatened/Candidate Species

There would be no impacts to any endangered, threatened, or candidate species resulting from the abandonment of the offshore pipelines.

Nearshore Pipeline Abandonment

As the nearshore pipeline will be abandoned in place, there will be no abandonment activities conducted within the nearshore area. Pipeline pigging and flushing operations will be conducted from the platforms. Pipeline grouting will be conducted from the pipeline end at the Carpinteria Plant. Therefore, as no work will actually be conducted in the nearshore area, there will be no impacts to any of the biological resources listed above.

1. Endangered/Threatened/Candidate Species

For reasons described above, nearshore pipeline abandonment activities will not result in any impacts to endangered, threatened, or candidate species.

Unique Marine Environments

The pipeline landfall is located approximately one-third of a mile east of the Carpinteria Reef and Marsh entrance and approximately one-third of a mile west of the Casitas Pier. Each of these three areas are designated Environmentally Sensitive Habitats (ESH).

As the nearshore pipeline will be abandoned in place, there will be no abandonment activities conducted within the Carpinteria Reef or Carpinteria Marsh. Pipeline pigging and flushing operations will be conducted from the platforms, and pipeline grouting will be conducted from the valve box on the bluff. Therefore, project operations will have no impacts to these Environmentally Sensitive Habitats.

The Casitas Pier will continue to be used as a base for support vessel operations during the course of the project. In order to avoid disturbance to the Carpinteria harbor seal colony located east of the Casitas Pier, the following measures which are presently observed will continue to be used during this project:

- Avoid sudden movements and loud noises when on the pier. Limit trips and equipment to the minimum necessary for efficient operations.
- Minimize time spent at the base of the pier and turnaround area. Use the parking areas to meet or drop-off personnel using the pier.
- Use only the main access road exiting the turnaround to the West.
- Demonstrate extra sensitivity at the Casitas Pier during Carpinteria's beach closure for the seal pupping season December 1 through May 31 (City of Carpinteria Ordinance No. 469).

As these measures are already in use at the Casitas Pier, no further mitigations are necessary. Existing operations have utilized the pier without any significant disturbance to the harbor seal colony. Proposed project operations will not result in a major increase in vessel traffic from the pier. Therefore, impacts to unique marine environments and environmentally sensitive habitats are projected to be less than significant.

D. Plant Life

1. Species Diversity

No plant communities are located within the offshore or onshore regions of the project area that would be significantly affected by this project. Therefore, there will not be any significant impacts to terrestrial or aquatic plants within the vicinity of this project.

2. Endangered Species

Offshore - No rare or endangered benthic plants are known to occur within the vicinity of the proposed platform abandonment. This project will not, therefore, result in any significant effects on rare or endangered plants.

Onshore - No onshore or nearshore aquatic flora has been identified as being at risk due to project activities. Therefore, project impacts to onshore flora are projected to be less than significant.

3. Introduction of Plants

By its nature, neither the offshore nor the onshore components of the proposed project would result in the introduction of any new plant species.

4. Agriculture Crops

There are no known onshore agricultural crops that would be impacted in any way by the proposed project.

E. Animal Life

1. Animal Species Diversity

Offshore - Abandonment activities associated with platform and subsea pipeline removal will result in some habitat loss and disturbance to bottom-dwelling fish and other marine animals which utilize these habitats. However, these impacts have been determined to be less than significant due to the abundance of other suitable habitat. Therefore, any loss of or disturbance to any habitat resulting from platform removal and

pipeline abandonment is considered less than significant due to the relatively small percentage of marine organisms impacted and the foregoing.

Onshore - As discussed above, no abandonment activities will be associated with the nearshore portion of the pipelines. It is anticipated that onshore operations will have less than significant impacts to the diversity of local biological resources.

2. Endangered Species

Offshore - As indicated in Subsection 7 and Subsection 1 above, the proposed project will not result in the reduction of the numbers of any unique, rare, or endangered species of animals.

Onshore - As indicated in Subsection 1, the onshore portions of the pipeline abandonment would not result in any impacts to any unique, rare, or endangered species of animals.

3. Introduction of Animals

Neither the offshore nor the onshore portion of this project are anticipated to create any permanent change of habitat which could introduce new species to the area. Upon completion of the project, the area will be restored to its previous state.

4. Habitat Deterioration

Offshore - As indicated in "Jacket Removal" above, impacts of platform removal would include loss of habitat for avifauna, pelagic fish, demersal fish, and marine mammals. However, these organisms are highly mobile and there is an abundance of natural reefs and other platforms within the area that provide similarly suitable habitat. Therefore, impacts of habitat removal for mobile offshore fauna are projected to be less than significant.

As previously described, immobile benthic organisms on the seafloor and biofouling organisms on platform jackets will undergo considerable damage and/or mortality in localized areas. Impacts to benthic organisms will be less than significant, however, due to the relatively small percentage of overall benthic organisms that will be disturbed by the proposed activities.

F. Noise

Offshore Setting

All wells on the platforms will be plugged and abandoned as a separate project prior to removal of the platforms. Human activity on the platforms is limited to a daily walk-through by personnel to ensure the proper operation of the equipment that is left in service. Current noise-generating sources originating from the platforms consist of air compressors, saltwater pumps, emergency power generators, foghorns, and emergency alarm systems. Until the platforms are physically dismantled these noise-generating sources will remain functional.

Supply/crew boats operate on a continual basis from the Casitas Pier to producing platforms from before dawn to after dark 7 days a week. A harbor seal rookery is located immediately adjacent to the pier. Noise originating from boat traffic, and oil related activities from the pier and on the cliffs have had no visually discernible impacts upon harbor seal breeding, pupping, or hauling out activities.

Onshore Setting

The Carpinteria area adjacent to the two easternmost platforms, Hope and Heidi, has a number of potentially sensitive receptors. Occupied single-family residences exist in the adjacent unincorporated area along Sand Point Road and Del Mar Avenue (known locally as the Sandyland and Sandyland Cove communities, respectively). Carpinteria City Beach and Carpinteria Beach State Park are immediately adjacent to the ocean for approximately 1.6 km (1 mi) in the western part of the City. The westernmost section of Carpinteria adjacent to the City beach is characterized by existing mixed occupancies - predominantly large multi-family dwellings adjacent to the beach, single-family dwellings farther inland, and commercial activities along Linden Avenue (CSA, Inc., 1985).

The nearest onshore receptors to platforms Hazel and Hilda consist of low-density single family residences along Padaro Lane, an unincorporated 1-1/2-mile-long street immediately east of Summerland; approximately 10 houses located on Finney Street in Summerland; and Lookout Park, also in Summerland. All of these receptors are located south of the Southern Pacific Railroad right of way and U.S. Highway 101. Noise generated from U.S. 101 and the Southern Pacific Railroad effectively buffer any platform-generated noise that may otherwise have been detected from noise sensitive receptors in the remainder of Summerland, located north of U.S. 101 and the Southern Pacific Railroad.

With the possible exception of emergency alarms and foghorns, none of the noise generating sources remaining on the platforms are detectable from coastal noise receptors.

Offshore and Onshore Impacts

1. Increase in Existing Noise Levels

Implementation of the proposed project would include the abandonment and removal of four oil and gas platforms. Offshore equipment utilized for project purposes would be the primary noise sources and include tug boats, crew boats, utility vessels, welding equipment, generators, and compressors. Noise would be generated during the mobilization of offshore equipment, pre-abandonment activities, pile and conductor cutting, topside removal, jacket removal, debris removal, site clearance verification, and pipeline abandonment.

Noise level increases will be greatest during the removal of platform topsides, and therefore represent a worst-case scenario. Project platforms will be removed in pairs, with one equipment spread operating at a time. Noise modeling conducted for the proposed project is presented in Tables 1.5.2-1 and 1.5.2-2.

Episodic noise events will occur as a result of explosive detonations used during the jacket removal phase. As indicated in the Impacts to Animal Life section, between 32 and 40 individual charges, each containing between 25 to 45 pounds of explosive material, will be detonated per platform. Explosive cutting operations will be conducted over 3 to 4 days per platform. All detonations will be conducted below natural mudline in approximately 100 feet of water. As the deck packages will be removed prior to explosive detonations, the sound from the subsea detonations will be directed skyward through the conductor and jacket casings. A cement plug inserted above each charge and the earth material surrounding each charge serve to further buffer the noise impacts. The resulting noise level experienced on the surface will be highly muffled. Explosive detonations will occur at least 1 mile from shore; therefore, noise levels at onshore receptors are projected to be scarcely audible. Noise levels from explosive detonations are, therefore, considered to be less than significant.

Currently, a number of residential land uses are situated along the shoreline between Summerland and Carpinteria within proximity to the abandonment and removal project area. Based on noise monitoring conducted by the Chambers Group for the FEIR/EA BEACON Beach Nourishment Demonstration Project (1992), existing noise levels along

the shoreline within these areas average between 60 and 61 dBA. During project abandonment and removal activities, worst-case noise levels due to offshore equipment operations would result in onshore Leqs of between 46 and 48 dBA, and overall CNEL levels of between 56 and 58 dBA. Projected noise levels would be lower than existing ambient conditions and would be generally masked, resulting in less than significant impacts. No sensitive land-based receptors will be exposed to severe noise levels.

With the removal of the platforms, the number of related support vessel trips will be reduced. Such a reduction in trips will reduce noise levels at the Casitas Pier and crew boat travel routes.

2. Exposure to Severe Noise Levels

See #1, above.

Table 1.5.2-1. Noise Prediction Topside Removal Hazel and Hilda

Noise Source	Number of Units	Assumed Use Factor	Max Sound Pressure Level @ 50 Feet (dBA)	Distance (feet)	Noise Level Leq (dBA)
Receptor:		shoreline			
Assumed Attenuation:		6 dBA per doubling of distance			
Tug Boat	6	0.25	90	10032	46
Crew Boat	2	0.2	90	10032	40
Utility Vessel	2	0.2	90	10032	40
Welding Machine	4	0.6	65	10032	23
Generator	4	0.1	76	10032	26
Compressor	4	0.2	81	10032	34
Total Leq Daytime During Normal Operations					48
Measured Daytime Ambient Without Construction					50
Assumed Nighttime Ambient					40
Number of Daytime Hours Operating					12
Number of Nighttime Hours Operating					12
Estimated Ldn or CNEL					56

Note: NA = Not Applicable

SOURCES: EPA (1971), Noise From Construction Equipment and Operations, EPA PB 206 717
Harris, C.M. (1979), Handbook of Noise Control, 2nd. Ed

Table 1.5.2-2. Noise Prediction Topside Removal Hope and Heidi

Noise Source	Number of Units	Assumed Use Factor	Max Sound Pressure Level @ 50 Feet (dBA)	Distance (feet)	Noise Level Leq (dBA)
Receptor:		shoreline			
Assumed Attenuation:		6 dBA per doubling of distance			
Tug Boat	6	0.25	90	10032	44
Crew Boat	2	0.2	90	10032	39
Utility Vessel	2	0.2	90	10032	39
Welding Machine	4	0.6	65	10032	21
Generator	4	0.1	76	10032	25
Compressor	4	0.2	8	10032	33
Total Leq Daytime During Normal Operations					46
Measured Daytime Ambient Without Construction					50
Assumed Nighttime Ambient					40
Number of Daytime Hours Operating					12
Number of Nighttime Hours Operating					12
Estimated Ldn or CNEL					55

Note: NA = Not Applicable

SOURCES: EPA (1971), Noise From Construction Equipment and Operations, EPA PB 206 717
 Harris, C.M. (1979), Handbook of Noise Control, 2nd. Ed

G. Light and Glare

Offshore Setting

As a navigational and operational safety measure, offshore oil platforms are equipped with extremely bright lights. Light emitted from the platforms at night creates the appearance of illuminated stationary ocean vessels. Blinking lights serve as beacons for seagoing vessels and aircraft and can be observed from great distances. At approximately 1.5 nm from shore for Hilda and Hazel, and 2.6 nm for Hope and Heidi, the four offshore platforms proposed for removal constitute four of the five platforms in existence in Santa Barbara County located within the 3-mile State water boundary and are the only ones within State waters visible within the Summerland to Carpinteria region. As such, Hope, Heidi, Hilda and Hazel are presently the most conspicuous nighttime offshore light sources from the Summerland through Carpinteria coastal region.

Onshore Setting

Existing onshore sources of light and glare associated with the project are limited to nighttime lighting at the Casitas Pier and the Carpinteria Plant. Security and safety lights are illuminated at these facilities during nighttime hours.

Offshore Impacts

1. Short-term light and glare impacts at the platforms will result from the presence of offshore equipment on a 24-hour per day basis for a two- to three-month period per two platforms (Hope/Heidi, Hazel/Hilda). Vessels such as derrick barges will be periodically positioned along the structures and will add to the existing light sources for periods of approximately one month per platform. Two materials barges will also be moored in remote locations adjacent to the platforms. All additional vessels and equipment will be brightly lit for navigational safety and for nighttime work purposes. Project-related light and glare in the offshore regions near the platforms will be visible from shore.

While there will be a visible increase in additional light, the increase will not result in a significant impact due to its distance from shore and the existing amount of other artificial light sources in the Channel. The additional lighting will also reduce the likelihood that other seagoing vessels will collide with the moored barges. Therefore, short-term project-related offshore light and glare is projected to be less than significant.

Long-term light and glare impacts in the Summerland and Carpinteria areas will be reduced upon removal of the project platforms. This net reduction of artificial light sources will result in an environmental enhancement.

Onshore Impacts

The onshore components of the proposed project will not be conducted at night and there will not be substantial glare-emitting sources during daylight operations. Therefore, there will be no onshore light and glare impacts.

H. Land Use

Offshore Setting

Oil and gas exploration and development activities were conducted from the platforms during the period from 1958-92. All hydrocarbon production has ceased and all wells will be permanently abandoned prior to the removal of the platforms.

Onshore Setting

The nearshore areas between Summerland and Carpinteria are characterized as generally low density residential with public access beaches comprising approximately 50 percent of the onshore area located between the two sets of offshore platforms. The unincorporated community of Summerland supports a population of approximately 5,000. The land use mix in this community is approximately 95 percent residential, 4 percent commercial, and 1 percent public facilities (Fire Department and Water District). County-maintained Lookout Park is located on the cliff overlooking Summerland Beach.

Low-density homes line the cliffs immediately east of Summerland along Padaro Lane for approximately 1.5 miles. Padaro Lane thereafter turns into Santa Claus Lane. Land use along this 0.5-mile stretch include a public beach and a few tourist-serving commercial facilities. Many of the commercial structures along this stretch are presently vacant.

Downcoast of Santa Claus Lane lies the private communities of Sandyland, Sand Point, and Sand Cove. The homes in these communities line the beach fringing El Estero estuary, a State-designated environmentally sensitive habitat. Carpinteria City and State Beaches and the Chevron processing facility and associated pier are located to the south. The City of Carpinteria borders the inland portion of El Estero to the southeast, and is directly inland from the State Beach. With a population of approximately 13,500, Carpinteria (1990 Census) is comprised of mostly residential units, with sizable percentages of commercial, industrial, and agricultural land uses.

South of the Casitas Pier the beach widens and extends approximately 3 miles south to Rincon Point. The Carpinteria Bluffs represent a significant portion of the undeveloped land overlooking this stretch of beach. A handful of light-industrial facilities are located further east toward Rincon.

In addition to Chevron's processing facility at Carpinteria, Mobil's Rincon processing facility is another existing onshore oil and gas processing facility along the Santa Barbara coastline in the vicinity of the project area.

Offshore Impacts

1. The proposed project would represent the permanent removal of offshore structures utilized for oil and gas production. The removal of these structures would return the production areas to a near natural state. Therefore, the proposed project would return the area to those uses which occurred off the coast of Summerland and Carpinteria prior to platform installations.

Onshore Impacts

Onshore components of the proposed project would include nearshore pipeline abandonment. As the pipelines will be abandoned in place, the proposed abandonment operations will not result in any alteration of the present or planned land use of the area.

I. Natural Resources

Regional Offshore Setting

1. Commercial Fishing

In 1986, 390 vessels made up the fishing fleet from Santa Barbara Channel ports. Santa Barbara, Ventura, Oxnard, and Port Hueneme harbored 172, 94, 40, and 84 vessels, respectively (SCB, 1988).

Two California Department of Fish and Game (CDFG) statistical data sets are used to help describe Santa Barbara Channel fisheries and assess impacts: port landings for years 1985 through 1990, and landings assigned to catch blocks for years 1981 through 1990. Annual port landings present a general overview of fish landed in Santa Barbara Channel ports and harbors. Monthly averaged port landings for years 1988 through 1990 are used to determine seasonality of landings and catches.

Santa Barbara Channel fish landings increased significantly from 1985 to 1989 and decreased in 1990. In 1985, landings totaled 35,698,478 pounds, and in 1989 landings totaled 74,589,823 pounds. In 1990, landings declined to 49,839,260 pounds (CDFG 1985). A compilation of the data for the four ports shows that squid was the top, but sporadic producer, followed by sea urchin, mackerel, rockfish, shark, tuna, hagfish, anchovy, halibut, prawn, rock crab, swordfish, abalone, white croaker, lobster, sole, sea cucumber, crab claw, white seabass, sablefish, shrimp, thornyhead, and salmon. Total averaged value of these species, in 1990 dollars, is \$20,490,341. Santa Barbara accounted for about half of the revenue (\$10,285,056) followed by Oxnard (\$4,014,647), Ventura (\$3,400,339), and Port Hueneme (\$2,790,299) (GTC Marine Terminal EIR, 1992).

- Fishing Technologies and Species Taken. The fishing industry of the Santa Barbara Channel is characterized by extreme diversity in both marine resources and vessel/gear type. Although fishermen from the entire West Coast are attracted by the local abundance and variety of marine species, most fishes taken in the Channel are landed in the Ports of Los Angeles (Terminal Island and San Pedro), Port Hueneme, Oxnard, Santa Barbara, Avila, and Morro Bay (GTC Marine Terminal EIR, 1992).

The gear types employed in harvesting the marine resources of the Santa Barbara Channel include: drag nets (trawlers), gill nets (drift and set nets), harpoons, hook-and-line, long line, purse seines, scuba and surface air (hookah diving units) troll gear, and various types of traps.

Drag nets are used in the Santa Barbara Channel to fish for halibut, rockfish, sole, prawn, shrimp, and sea cucumber. Incidental catches of other species are also made, including sablefish (blackcod), shark, and other bottom fishes. CDFG regulations limit dragging to beyond 5 km (2.7 NM) from shore, except for halibut which may be taken to within 1.6 km (0.9 NM) of shore. Shelf and slope areas are fished to depths of about 305 m (1,000 feet). Dragging for prawn and shrimp occurs from Point Conception to Sacate, between El Capitan and Carpinteria, along the north side of the Channel Islands, and over reefs between and west of Platforms Hogan and Grace. Rockfish areas are primarily at the west end of the Channel, and on the south side of San Miguel and Santa Rosa Islands. Dragging for sole is conducted in the eastern end of the Channel and along the north side of the Channel Islands. Halibut dragging occurs between Point Arguello and Point Conception, Sacate and Tajiguas, and Carpinteria and Port Hueneme. Some of the most productive halibut tows are made in the vicinity of PRC 3150, the lease area containing Hope and Heidi (CSA, 1985).

Two types of gill net are used: drift nets and stationary or set gear. Drift nets are regularly used in the Santa Barbara Channel to fish for barracuda, seabass, swordfish, thresher shark, and occasionally bonito. Primary target species are swordfish and thresher shark, which are both pelagic, migratory fishes. Fishing areas generally are located adjacent to shipping lanes between Santa Barbara and Point Conception.

Set gear is fished in relatively shallow nearshore water, within the 55-m depth contour. Target species include barracuda, halibut, seabass, and several varieties of shark. A few years ago, several fisherman also experimented with rock cod gill nets, but this practice has been abandoned within the Channel.

The primary hook-and-line fishery in the Santa Barbara Channel is "drop lining" for red snapper, also known as "rock cod," but scientifically referred to as the Vermilion rockfish (*Sebastes miniatus*). This type of fishing occurs throughout the Channel over the continental shelf particularly near rock piles and some platforms. As noted in recreational fisheries, above, *S. miniatus* is a commonly

taken species by recreational fisherman off of Platform Hope. Fishing spots are located both by visual reference to landmarks and nautical charts, and by electronic means.

Purse seining occurs throughout the Santa Barbara Channel, exclusive of the shipping lanes, for pelagic species such as anchovy, mackerel, and squid. Nearshore areas outside of kelp beds are generally more productive than offshore areas, especially at the western end of the Channel (CSA, 1985).

Almost all commercial abalone diving now occurs south of Point Conception. Abalone are harvested along the mainland coast and around the Channel Islands out to a depth of about 30 m (100 ft). At least six species of abalone are found in the Channel: red, white, black, pink, green, and threaded. Most of the harvest, however, is composed of red, pink, and white abalone. Black abalone are harvested for the Japanese market (CSA, 1985).

Sea urchin are harvested along the mainland coast and around the Channel Islands to depths of about 18 m (60 feet). The large red urchin (*Strongylocentrotus franciscanus*) makes up most of the harvest, although the purple urchin (*S. purpuratus*) is taken as well. Sea urchin has clearly replaced abalone as the overall most valuable commercial shellfish resource in Southern California. Although a small fraction of the sea urchin harvest is landed in the port of Santa Barbara (Little, 1985).

Trolling is a variation of hook-and-line technology used by members of the Santa Barbara commercial fishing community to pursue albacore, bonito, salmon, and, until their recent depletion, barracuda. Most salmon trolling within the Channel has traditionally been conducted within 1.6 km (0.9 nm) of shore near the kelp beds between Gaviota and Point Conception. However in recent seasons, significant catches have been made in the nearshore region between Carpinteria and Ventura; this has been the result of an ambitious CDFG program to develop the salmon potential of south coast area habitats, as most streams and rivers emptying into the Santa Barbara Channel were natural salmon spawning areas within the historic period. This unique Southern California salmon run, begun primarily for the benefit of sportsmen, has resulted in substantial commercial benefit for local fishermen, processors, and commercial passenger fishing vessel operators. Albacore and bonito trolling takes place in open water throughout the Channel wherever and whenever these fishes can be found (Little, 1985).

The rock crabs *Cancer anthonyi*, *C. Antennarius*, and *C. productus* and the spiny lobster *Panulirus interruptus* are trapped in the Santa Barbara Channel. Both crab and lobster traps are placed in shallow water (less than 55 m [180 feet]) along the mainland and at the Channel Islands. Some of the most productive crab and lobster grounds are located in the vicinities of Pitas Point and Gaviota (CSA, 1985). Table 1.8-1 summarizes fishing methods utilized, species taken, and regulated seasons for commercial fisheries in the Santa Barbara Channel.

- **Kelp Harvest.** Giant kelp (*Macrocystis pyrifera*) has been harvested commercially in California since 1911. Alginates extracted from giant kelp are constituents in a variety of products, namely: as a substitute for agar; as an additive to prevent or retard boiler scale formation; binder for printers ink; a dye vehicle for cloth printing; as stabilizers for cosmetics, dairy products, dentifrices, jams, and paints. Three companies currently lease kelp beds in the Santa Barbara Channel. Although kelp beds are present within the lease areas under study, they are not exploited commercially.
- **Mariculture.** Fifteen mariculture operations are active in the SBC. The majority of these operations are clustered within the Goleta Point and Santa Barbara Point regions. Other operations extend as far west as Cojo Bay and south to Port Hueneme. The sole mariculture operator in the Summerland/Carpinteria Region is Ecomar, Inc. Under an arrangement with various operators, Ecomar is contracted to maintain the platform's underwater surfaces at a low level of fouling. Under this program, which is an open-ended contract with no cost to the operator, Ecomar harvests between \$25,000 and \$75,000 worth of bay mussels (*Mytilus edulis*) biannually, per platform (Meek, personal communication, February 1993). The harvest amount varies according to mussel growth patterns and market conditions at the time of harvest.
- **Recreational Fishing.** Pier, jetty, and shoreline fishing are limited to the mainland coast within the Santa Barbara Channel because access to the Channel Islands is somewhat restricted. Shoreline fishing occurs wherever public access is available, particularly at Summerland Beach, Santa Claus Lane Beach, and Carpinteria State Beach. Recreational fishing from private craft occurs along the coastline as well as around the Channel Islands; fishing activity is generally concentrated in or adjacent to kelp beds. Skin and scuba divers enter the water from shore, private craft, and party boats. Most sport diving occurs in kelp beds or rocky reef areas (CSA, 1985).

Table 1.8.1-1. Commercial Fisheries in the Santa Barbara Channel¹ (SBC)

Fishing Method	Species	Regulated Seasons
Purse Seine	Squid Mackerel Anchovy	Year round Year round Year round
Set Gill Net	Halibut Angel Shark Bonito Shark Rockfish White Croaker Bonito White Seabass	Year round Year round Year round Year round Year round Year round 6/16 - 3/14
Drift Gill Net	Swordfish Thresher Shark	5/1 - 1/31, coastwide. Within 75 miles of coast, closed from 5/1 - 5/14, within 25 miles of coast, closed 12/15 - 1/31.
Trap	Crab Hagfish Spot Prawn Lobster	Year round Year round Year round 1st Wed. in Oct. - 1st Wed. after 3/15.
Dive	Urchin Abalone	Year round, except for weekly and daily restrictions 5/1 - 9/30. 2/1 - 7/31, 9/1 - 12/31.
Trawl	Halibut Shrimp Prawn Sole Sea Cucumber Shark Rockfish Sablefish Thornyhead	CA halibut trawl grounds: 1/16 - 3/15. 4/1 - 9/30. Ridgebacks: 10/1 - 5/30; Spots: 2/1 - 10/31. Year round Year round Year round Year round Year round Year round
Troll	Salmon Albacore	Generally 4/15 - 9/30 Year round
Hook & Line	Rockfish	Year round
Harpoon	Swordfish	Year round

¹ Gill nets, trap, dive, and trawl are also subject to area restrictions, depending on gear design and species.

Sources: CDFG, 1991 to SCB, 1988; MBC Applied Environmental Sciences, 1987; Richards, 1991; Fusaro, 1991; Wagner, 1991.

Commercial passenger fishing vessels (party boats) represent a valuable component of the tourism industry of the Santa Barbara Channel communities. Party boat fishing is available from Goleta (1 vessel), Santa Barbara Harbor (5 vessels), Ventura Marina and Channel Island Harbor (7 vessels), Port Hueneme (4 vessels), and Oxnard (14 to 16 vessels). Operators of these crafts and their passengers fish coastal areas from Point Mugu to Point Arguello and around the Channel Islands. Most fishing is conducted within 3 to 5 km (1.6 to 2.7 nm) of shore along the coast, except in the Santa Barbara to Carpinteria area where fishing extends 6.5 to 8 km (3.5 to 4.3 nm) offshore to include several subsea structures and Fourmile Reef (CSA, 1984).

Carpinteria Reef is believed by recreational fishermen to be an extremely sensitive area due to its importance as a spawning ground for California halibut, calico bass, sand bass, and other species. The reef also provides habitat for rare resident populations of white seabass and barracuda. Party boats from the port of Santa Barbara rely on Carpinteria Reef as one of six principal inshore fishing sites. Platforms are also regular stops as part of the normal party boat circuit.

As discussed in Biology, above, 20 to 50 times more fish are located beneath the platforms compared to adjacent soft bottom areas and 5 times as many fish as natural reefs. For this reason, waters surrounding the platforms serve as excellent recreational fishing areas (Simpson, 1977).

Regional Onshore Setting

There are no significant onshore natural resources located in the vicinity of the project area. See Land Use discussion.

Platform-Specific Setting

1. Commercial Fishing

The area seaward from Carpinteria Reef and shoreward from Hope and Heidi is fished by gillnetters and crab and lobster trappers. Approximately 15 to 20 commercial vessels regularly fish the area. It should be noted that no trawling is conducted in the vicinity of any of the platforms. Carpinteria Reef is believed by both commercial and sport fishermen to be a principal habitat and spawning area for several marine species (CSA, 1985).

Lobster trapping occurs shoreward of platforms Hazel and Hilda due to the proximity of some rocky substrate (Blunt, 1980). Gill nets are set, primarily for halibut and white seabass, with occasional rounds/hauls set off shore for mackerel and bonito (Chambers, 1992).

- **Mariculture.** In addition to mussel harvests, Ecomar has in recent years developed a viable oyster culture industry off of platform Hazel. Cages and nets are suspended from the vertical structure below where the mussels grow, at depths between 30 and 60 feet (9 to 18 m). Oysters are "planted" from these objects and are harvested every 24 months. Revenues from the oyster culture are greater than 50,000 dollars biannually (Meek, personal communication, February 1993). Over the past 10 years approximately 30 percent of Ecomar's revenues have been generated between the four platforms under study (Meek, personal communication, February 1993). Ecomar's contract for mussel/oyster "farming" on the project platforms expired in 1993.

2. Recreational Fishing

Please refer to Biological resources for a discussion of fish taken by recreational fishing operations at the platforms under study.

Platform - Specific Onshore Setting

1. Onshore Recreational Fishing

The discussion for regional onshore recreational fishing located above can be applied to the platform-specific recreational fishing conditions.

Offshore Impacts

Short-Term (Removal/Abandonment Operations)

1. Jacket Removal

- **Commercial Fishing.** Impacts to commercial fishing from the removal of the project platforms are anticipated to be less than significant. During platform removal operations increased vessel traffic within the platform regions will occur.

However, all vessels will operate within existing traffic corridors, thereby minimizing impacts to fishing operations.

Moored vessels, such as derrick and materials barges will be located within platform vicinities during jacket removal operations. Anchor mooring spreads from these vessels are laterally suspended for a span of approximately 2,000 feet. A several thousand foot radius clear zone would be established around these areas during jacket removal operations to avoid interference. As all of the platforms are located inside of the 5 km (2.7 nm) commercial net dragging restricted zone, there would be no impacts to most commercial net dragging operations. However, drag net trawling for halibut is allowed within the 1.6 km (0.9 nm) contour. The areas surrounding the platforms are avoided for this type of fishing. Restriction from their vicinity during jacket removal operations, therefore, would have no impact to drag net trawling operations.

Set gill nets, also allowed to within 1.6 km (0.9 nm), are used for halibut, angel shark, bonito shark, rockfish, and other demersal fish species. As with drag net trawler, set gill net fishing would be restricted from this zone for the duration of the jacket removal operations. Due to the relatively small percentage of the overall fishery occupied by the abandonment operations, impacts to stationary gill net fishing operations are projected to be less than significant.

Salmon trolling, also conducted within 1.6 km (0.9 nm) of shore between Carpinteria and Ventura would be restricted from the nearshore area near the easternmost platforms, Hope and Heidi. As the regions surrounding the platforms are off limits during normal operations, their restriction during the jacket removal operations would be less than significant.

Other types of fishing operations, such as urchin diving, and crab and lobster trapping would not be impacted from platform jacket removal as the platform areas are not locales ordinarily utilized for these fisheries.

- **Recreational Fishing.** The presence of abandonment vessels will preclude the use of the waters surrounding the platforms by recreational fishing vessels for the duration of the removal operations. Recreational fishing opportunities will continue, without constraint, following the completion of the project.

2. Offshore Pipeline and Power Cable Abandonment

- **Commercial and Recreational Fishing.** There will be no impacts to commercial and recreational fishing from offshore pipeline and power cable abandonment operations.

Long Term

1. Jacket Removal

- **Commercial Fishing.** By allowing access to previously inaccessible areas, the removal of the platform structures is anticipated to have a beneficial impact on the local commercial fishing industry. Once the platforms are removed, it is foreseeable that fishing methods currently practiced in the nearby, nearshore region will expand into the former platform locations. Drag net trawling for halibut, stationery gill netting, and trolling will likely be utilized in the waters formerly occupied by the platforms. Trapping operations will also likely expand into these waters.
- **Mariculture.** The removal of the four project platforms would have a direct impact on the revenues generated from bay mussel and oyster harvests. Ecomar, the sole harvester of Hope, Heidi, Hazel, and Hilda, grosses approximately \$50,000 biannually in oyster revenues, and between \$25,000 to \$75,000 biannually in bay mussel revenues. Income generated from the project platforms has accounted for approximately 30 percent of Ecomar's historic revenues.

While the removal of the platforms will diminish the amount of substrate available for mussel harvest, other options exist for oyster cultivation. Oyster-growing hardware attached to Hazel over a 7-year period will be retrieved and a portion of it reused at an alternate location (Meek, personal communication, 1993). Ecomar currently leases a one acre tract near Santa Barbara that will eventually replace the apparatus currently used on Hazel. The subsurface structure will consist of a series of subsurface buoys. Some substrate suitable as mussel habitat will also be included.

- **Recreational Fishing.** Removal of the project platforms would result in a reduction of the artificial structures around which recreational fishing occurs.

However, these platforms and their subsea artificial reefs represent only a small portion of the habitat available to recreationally sought-after fish. The eastern Santa Barbara Channel is home to numerous other platforms located in a variety of water depths and distances from shore. Further, there are numerous other natural reefs, canyons, ridges, and other subsea land forms that provide suitable habitat for fish. These are all currently utilized by the sport fishing industry. Due to the variety of options available and the belief that the platforms may serve as only fish attractors versus true fish breeding ground habitat, the removal of the project platforms is anticipated to have a less than significant impact on the offshore recreational fishing industry.

2. Offshore Pipeline and Power Cable Abandonment

- **Commercial Fishing.** Abandonment operations for the offshore portions of the pipelines and power cables would occur within the immediate vicinities of the platforms. No additional mooring spreads or vessel traffic would result from this component. Therefore, impacts to commercial fishing are anticipated to be the same as those described for platform jacket removal.
- **Recreational Fishing.** Abandonment operations for the offshore portions of the pipelines and power cables would occur within the immediate vicinities of the platforms. No additional mooring spreads or vessel traffic would result from this component. Therefore, impacts to recreational fishing are anticipated to be the same as those described for platform jacket removal.

Onshore Impacts

Short-Term and Long-Term Nearshore Pipeline Abandonment

As the nearshore pipeline will be abandoned in place, there will be no abandonment activities conducted within the nearshore area. Pipeline pigging and flushing operations will be conducted from the platforms. Pipeline grouting will be conducted from the valve box on the cliff. Therefore, as no work will be conducted in the nearshore area, there will not be any impacts to commercial or recreational fishing or to any other natural resources that may occur in the area.

1. Increase in Use

By its nature, the proposed platform removal/pipeline abandonment program would not entail an increase in the rate of use of any natural resources, nor would it result in a substantial depletion of any nonrenewable resources.

2. Depletion of any Nonrenewable Resources

See #1. above.

J. Risk of Upset

The following section contains a brief overview of procedures that will be undertaken to avoid upset conditions during platform removal and pipeline abandonment operations. A list of "Critical Operations" and corresponding "Curtaiment Measures" are provided in Section 3.0 Critical Operations and Curtaiment Plan, and Section 4.0 Oil Spill Contingency, for detailed procedures that will be followed in the event of an emergency situation.

Offshore Setting

The platforms in their existing condition are dormant structures. All wells will be permanently plugged and abandoned prior to platform removal. The platforms also contain storage vessels which previously contained hydrocarbons. These vessels have been emptied and cleaned; however, residual hydrocarbons may still be present in small quantities. Thus, while the risk of an explosion or any other upset conditions is extremely low, the remote potential exists for the release of hazardous substances into the air and/or water column.

Onshore Setting

Pipelines used to transport oil and gas from the platforms are still in place. Landfall for these pipelines are within the immediate vicinity of the Casitas Pier. Residual hydrocarbons are likely to be present within these pipelines to be abandoned.

1.& 2. Offshore and Onshore Impacts

During the course of the proposed platform removal and pipeline abandonment, handling of residual hydrocarbons as well as diesel fuel will occur. Seawater used for the pipeline flushing will be collected and processed through the existing oil/water separators at the Carpinteria facility. The water will then be discharged in accordance with the plant's existing NPDES Permit requirements.

All containment vessels and pipes that have remained operational will be cleaned out as a part of the topside removal phase. Fluids collected during the cleaning operations will be drained into appropriate containers on a work boat and transported to shore for appropriate processing and disposal. In the event of a fire, explosion, hydrocarbon leakage or other hazardous condition, a series of curtaiment measures outlined in Chevron's existing Oil Spill Response Plan will be followed. As a result of the procedures listed above, the risk of upset from the proposed platform removal/pipeline abandonment project is anticipated to be less than significant.

K. Population

Offshore and Onshore Setting

The removal of the platforms will not have any impacts on the distribution, density, or growth rate of the population of the area.

Offshore and Onshore Impacts

1. By its short-term nature, the proposal will not result in the alteration, distribution, density, or growth rate of the human population of the area. Any additional hiring that may be required during the course of the project is anticipated to be able to be accommodated by the local industry work force. Therefore, population issues are anticipated to be less than significant.

L. Housing

Offshore and Onshore Setting

The removal of the platforms will not have any impacts on the housing supply of the local or regional area.

Offshore and Onshore Impacts

1. By its short-term nature, the proposal will not result in any additional permanent residents that would create a demand for the construction of new housing. The existing rental housing market in Carpinteria would sufficiently accommodate any temporary workers hired for the proposed project. Impacts to housing, therefore, would be short-term and less than significant.

M. Transportation/Circulation

Offshore Setting

Crew Boat Routes

Offshore transportation presently consists of crew boat trips to and from the platforms. Chevron uses one contracted crew boat, the *Price Tide*, to ferry workers to and from all four platforms. Four other boats run by different operators regularly use the Casitas Pier facility. Including the *Price Tide*, crew boats make between four and 10 runs each for a total of approximately 38 runs per day. The *Price Tide* generally makes 10 runs per day. Chevron has two other contracted boats, the *Wendy Tide* and the *Murdock Tide* that make approximately one run from the Casitas Pier each per week.

Vessel Corridors

Crew boats are assigned designated routes to and from the platform, as shown on Figure 1.12.1-1. These routes have been designed to aid in the prevention of collisions at the approaches to landing facilities and between the platforms and to avoid interference with commercial fishing operations.

Shipping Lanes

All transport of goods within the Santa Barbara Channel is done within designated north and south shipping lanes. The shipping lanes are located in the channel, approximately 13 nm from the Casitas Pier facility. Each shipping lane is 1 nm wide separated by a 2 nm separation zone.

Onshore Setting

Regional Setting

U.S. 101 provides the major north-south link to the Casitas facility within Santa Barbara County. For much of its length through this region U.S. 101 is a four-lane, limited access freeway. However, stretches of five and six lane road with at-grade access exist along its length. A portion of the southbound direction through Carpinteria widens to three lanes, between Bailard Avenue and the Ventura County line.

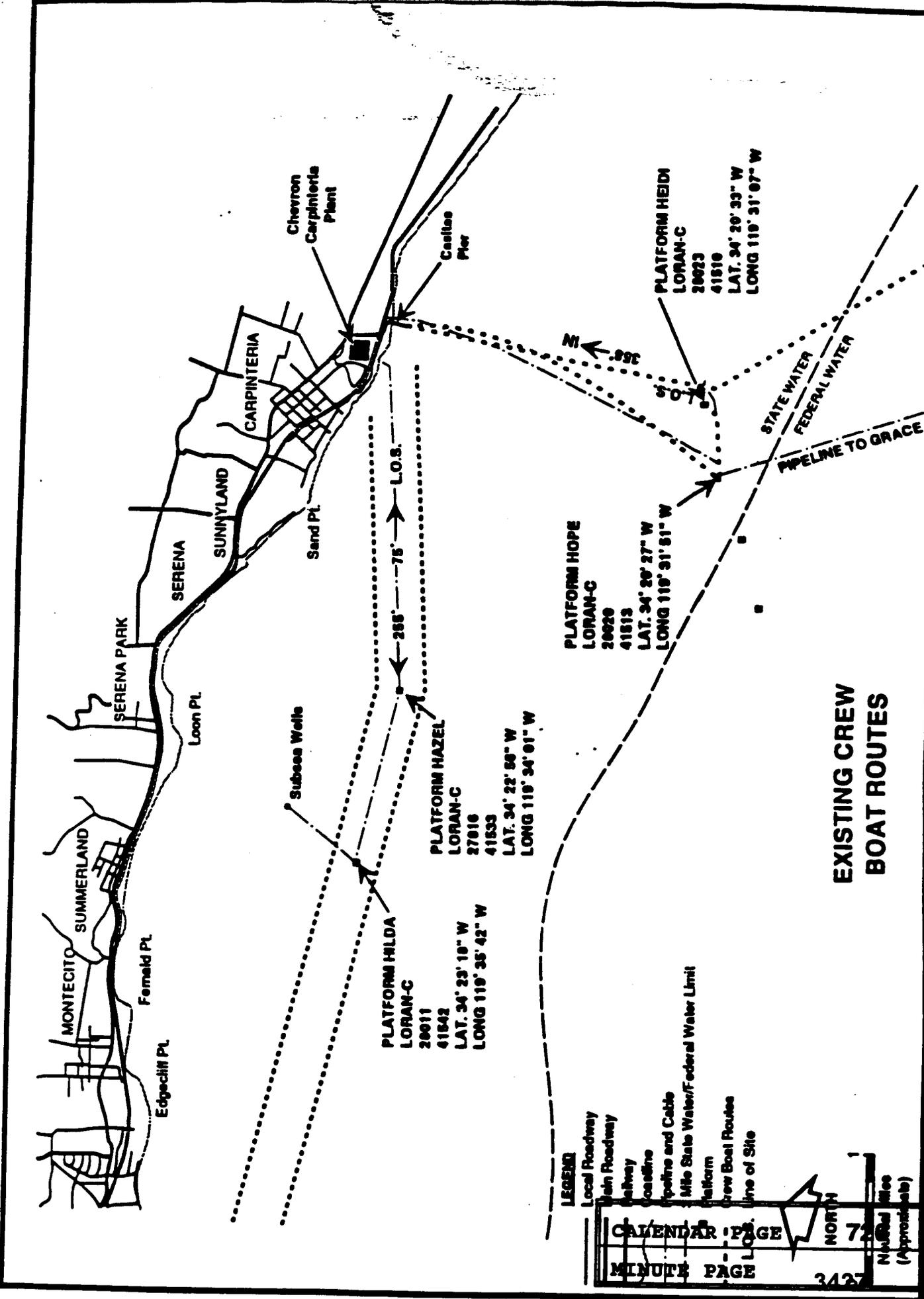


FIGURE 1.12.1-1

Local Roads and Existing Traffic Levels

The Casitas Pier facility entrance is located on east-west trending Carpinteria Avenue in eastern Carpinteria. Access from U.S. 101 is reached from the Casitas Pass exit to the north and by the Bailard Avenue exit to the south. Traffic levels at the key intersections of Carpinteria Avenue at Casitas Pass and Bailard Road are presently Level of Service (LOS) C and A, respectively. The intersection of Casitas Pass Road and U.S. 101 is LOS C for the southbound ramp and B for the northbound ramp. The Bailard Avenue intersection at U.S. 101 is at LOS A-B for the northbound and southbound ramps (ATE Analysis for Circulation Element 1989 Update EIR).

Existing Vehicle Trips at the Casitas Facility

Approximately 115 to 125 employees per day use the Casitas Pier facility. Of these, approximately 10 presently work on the project platforms. Assuming a vehicle ridership of 1.2 persons per vehicle, the Casitas facility probably generates approximately 104 trips per day (a trip is "a single or one-directional vehicle movement with either the origin or destination [exiting or entering] inside a study site") (ITE, 1989). Chevron employees designated specifically to the project platforms probably account for between 15 and 17 trips per day.

Parking Provided at Facility

Parking for the Casitas Pier facility is provided in the form of a combination of a paved parking area and a dirt parking lot with a capacity for 160 cars, located on the bluff adjacent to the pier.

Assumptions and General Approach to Impact Analysis

Preparation of this overview has required certain assumptions to be made relative to worker numbers, number of trips, shift times, commuting patterns, and impact importance. For the onshore portion, potential impacts have been analyzed in terms of changes in Level of Service (LOS) at key intersections of concern. The LOS is estimated in terms of the ratio of the volume of traffic across the intersection of interest to its corresponding capacity.

During the course of the platform removal and pipeline abandonment project approximately 69 additional personnel will be required. During the offshore portions of the project, most of these workers will be stationed offshore on 12-hour work shifts, 7 days per week. The

majority of workers will not sleep offshore. Rather, they will be rotated to and from shore upon completion of their shifts. In order to reduce the total project length, operations will occur 24 hours per day.

1. Vehicular Movement

Offshore Impacts

The majority of sea vessels, such as the derrick barges, materials barges, and tug boats, will be moored at the platforms for the duration of the project. The crew boat and utility/supply boats will typically be making trips between platforms and to and from the Casitas Pier on a continuous basis. It is difficult to estimate how many trips per day the crew boats will make, but they will likely double over the existing amount for the 3- to 4-month duration of the offshore portion of the project. Total time for removal per platform is estimated at 30 days. Most phases of work will occur concurrently on two platforms at a time (Hope and Heidi, Hazel and Hilda). Therefore, total elapsed time for removal of the four platforms will probably be around 120-130 days.

Portions of the dismantled platforms will be ferried to the salvage yard in Long Beach on two materials barges. After the topside of a platform is dismantled and placed on one of the materials barges, that materials barge will begin the 1.5-day journey to Long Beach for offloading. During this period, the platform jacket of the same rig will be placed onto the second materials barge. As the second materials barge heads to Long Beach with the jacket, the first materials barge will be on its way back to the project area. An additional derrick barge may be needed for offloading upon arrival of the loaded materials barges in Long Beach. Upon return of the materials barge, it will re-moor and prepare to accept another platform topside. This process of staggering the loads of the materials barges will be carried out for the duration of the removal operations.

Project-generated offshore vessel traffic is anticipated to have less than significant impacts to Santa Barbara Channel circulation because all crew boat and utility/supply boat transportation will be conducted within the designated crew boat routes. Derrick and materials barges will be utilizing the shipping lanes located in the Channel when travelling to and from the project area. Adherence to these guidelines will ensure that congestion is minimized throughout the duration of project operations. In addition, a notice describing the project's boundaries and potential hazards to navigation will be sent to the U.S. Coast Guard for publication in the Local Notice to Mariners (see Appendix E). These procedures

will ensure that offshore transportation and navigational impacts remain at less than significant levels.

Onshore Impacts

As traffic levels along Carpinteria Avenue near the Casitas Pier facility entrance are low, project-generated traffic is not anticipated to create or add to any congestion impacts. Project vehicular commuting traffic and truck traffic are expected to peak at different times and to have only slight direct interaction. Worker commuter traffic is projected to be highly structured, controlled by the scheduling and duration of work shifts. Due to the long hours of the shifts scheduled for the project, work crew commuter traffic will occur before the AM peak and after the PM peak traffic hours. Other project-generated vehicles such as trucks and equipment operators will enter and exit the Casitas Pier facility at random times. Overall onshore traffic impacts are projected to be less than significant due to the short duration of the project, the random time periods of entrance and exit of most vehicle trips, and the low traffic levels existing within the Carpinteria area.

2. Parking

All parking for project operations will be accommodated within the existing Casitas Facility parking areas. Therefore, project-generated parking impacts will be less than significant.

3. Transportation System

See Offshore and Onshore Impacts above.

4. Circulation

See Offshore and Onshore Impacts above.

5. Traffic

See Offshore and Onshore Impacts above.

6. Traffic Hazards

See Offshore and Onshore Impacts above.

N. Public Services

Offshore and Onshore Setting

In the event of an unforeseen accident, services by public agencies are available from the U.S. Coast Guard, the U.S. Environmental Protection Agency, and the California Office of Emergency Services. The role of each of these entities in the event of an emergency are presented in the Emergency Response Plan. Response capabilities from these agencies would be adequate to address any type of emergency condition that could potentially occur. Aside from the potential, limited use of these agencies, the abandoned platforms will not affect any other public services.

Offshore and Onshore Impacts

In the event of an oil spill during the project, the proposed project may affect the availability of local emergency response vehicles/vessels provided by the U.S. Coast Guard (offshore), the U.S. Environmental Protection Agency (onshore), and the California Office of Emergency Services (offshore/onshore). The magnitude of residual oil that may leak from a break in any portions of the offshore or onshore pipelines is anticipated to be extremely small. These agencies would only be required to oversee Chevron's response to contain and dispose of any leakage that may occur. Aside from the potential, limited use of these agencies, the project will not affect any other public services.

1. Fire Protection

See "Impacts" paragraph above.

2. Police Protection

See "Impacts" paragraph above.

3. Schools

See "Impacts" paragraph above.

4. Parks and Recreation Facilities

See "Impacts" paragraph above.

5. Maintenance of Public Facilities

See "Impacts" paragraph above.

6. Government Services

See "Impacts" paragraph above.

O. Energy

Offshore and Onshore Setting

No significant energy consuming uses are in operation on the platforms and power comes from the existing electrical grid.

Offshore and Onshore Impacts

1. Fuel and Energy Sources

This oil production platform and pipeline removal/abandonment project is not a long-term energy consuming use. The proposal would not result in a substantial increase in demand upon existing sources of energy or require the development of new sources.

2. Existing Energy Sources

See #1 above.

P. Utilities

Offshore and Onshore Setting

Existing electricity consumption is not available for each platform. However, the total consumption for Hazel/Hilda and Hope/Heidi are shown below.

Hazel/Hilda		kWh/day
Current Consumption		1,879
Consumption prior to shut-in of Hilda wells (8/92)		2,176
Consumption prior to shut-in of Hazel wells (9/91)		10,382
Hope/Heidi		kWh/day
Current Consumption		2,310
Consumption Prior to shut-in of wells		46,182

Offshore and Onshore Impacts

1. Power or Natural Gas

The completion of the project will result in a decrease in utility consumption from current and operational levels. Electricity supply will be severed and consumption will be reduced to zero.

During the platform abandonment project, trash or debris generated offshore will be confined to work vessels in metal trash containers and properly disposed of when the vessels return to port. Trash or debris generated onshore by subcontractors would be properly disposed of offsite by Chevron crews.

Q. Human Health

Offshore and Onshore Setting

The abandoned platforms do not pose a threat to human health. All wells will have been permanently plugged and abandoned prior to the start of the project, thereby reducing the risk of a blowout and/or a hydrogen sulfide leak to nearly zero. All emergency warning systems and lighting are still in place. Exposure of people to platform-related hazards is minimal.

Offshore and Onshore Impacts

1. Health Hazard

In the event that an oil or diesel leak occurs during project operations, oil spill response equipment will be deployed for immediate cleanup. Potential spill amounts are not anticipated to be great (less than 10 barrels) and would not pose a serious health risk to humans. Measures contained in Chevron's Oil Spill Contingency Plan would mitigate impacts that could result in health impacts from offshore activities. With this mitigation incorporated into the project, it is anticipated that potential health hazards created from offshore activities will be less than significant.

Since onshore facilities will be abandoned in place, no health hazards will result from the onshore portion of the project.

2. Exposure of People to Health Hazards

See above.

R. Aesthetics

Offshore and Onshore Setting

The platforms represent man-made obstructions within an otherwise unimpeded view of the Santa Barbara Channel and Channel Islands. While the four platforms in question represent only a portion of the oil platforms located in the Santa Barbara Channel adjacent the Santa Barbara/Summerland/Carpinteria region, they are the closest and most prominent.

Offshore and Onshore Impacts

Removal of the project platforms would result in beneficial aesthetic impacts from all view corridors in which the platforms are currently visible. As Heidi, Hope, Hazel and Hilda are the closest platforms to the Carpinteria and Summerland coastlines, the positive change in the visual character of the local waters will be dramatic.

S. Recreation

Offshore and Onshore Setting

A wide range of active and passive ocean-oriented recreational activities are available in southern Santa Barbara County. Popular beach and ocean activities include swimming, surfing, sunbathing, fishing, camping, biking, ocean viewing, diving, and boating. Section I, Natural Resources, contains a complete discussion of onshore and offshore recreational fishing locations, species taken, and relative abundance.

Principal parks and beaches along the coastline from west to east include Lookout Park, Santa Claus Lane Beach, and Carpinteria City and State Beaches. Present use levels at Santa Barbara County beach areas reflect weekend and holiday use at virtually 100 percent of capacity during the months of April through October (SLC, 1987).

Offshore Impacts

1. Aside from the impacts to the recreational fishing industry, which is discussed earlier in this chapter, Section I, Natural Resources, removal of the project platforms would not have any impact on the quality or quantity of offshore recreational opportunities provided in the region.

Onshore Impacts

As the nearshore segment of the pipelines and power cables will be abandoned in place, there will be no impacts to onshore recreational resources.

T. Cultural Resources

Offshore and Onshore Setting

1. Archaeological Sites

Cultural resources data interpretation for the lease area containing Hope and Heidi (PRC 3150) was performed by McFarlane (1983a). Data quality was judged to be adequate for detecting obvious archaeological resources within the project area.

This area of the Carpinteria offshore shelf is part of a shallow Pleistocene drainage system now filled and covered with a relatively thin veneer of marine sediments over a transgressed erosion surface. Survival of any pretransgressive terrigenous soil under marine sediment is unknown.

Hudson (1976) reports a shallow water occurrence of prehistoric artifacts he designates as site "marine-7," located near Carpinteria. This location is only reported; no further scientific surveys or investigations have been conducted.

A beach resort known as Cerca Del Mar, located directly onshore in property presently within the Carpinteria State Beach, featured a pier erected in 1935. This structure, while apparently never finished due to the death of its developer, was popular and heavily used through at least the 1960s (Rouse, 1978). The year of abandonment is unknown. Occasional heavy storm surf exposes rows of piling stubs at this location (Deland, 1985, personal communication, Carpinteria Museum in CSA, 1985).

The project area lies 14.6 km (9 mi) east of the historic Santa Barbara Mission Landing and 26 km (16 mi) northwest of the San Buenaventura Landing. The exact location of the first landing used by local ranches within the Carpinteria Valley vicinity is unclear in the literature. However, a wharf was established just inside the western boundary of the lease tract at La Serena in 1874. This may have previously been a beach landing as well. Called variously Smith's Wharf and Carpinteria Wharf, its date of abandonment is unknown (Rouse, 1980). In 1965, Chevron placed the existing service pier at Casitas Creek.

McFarlane (1983a) reports five watercraft being lost within or near the project area. Four of these are modern smallcraft and are not of cultural significance. A literature search of the Carpinteria Museum of History archives did not provide any additional

information as to the location of the remaining shipwreck. While this wreck and others may exist in the project area, there apparently have not been any major beach wrecks along the tract's shoreline during this century (Candaele, 1985, personal communication, Carpinteria Museum of History).

McFarlane (1983a) lists nine data events of unknown cause as occurring on geophysical survey records. Five are unidentified sonar targets, three are low-gamma magnetic anomalies and one event, observed on both systems, is indicated as a "possible boat." None are within 300 m (1,000 ft) of any of the platforms.

Offshore and Onshore Impacts

Removal of the proposed platforms and pipelines is not anticipated to interfere with any of the cultural resources identified above. However, if any vestiges of archaeological remains are encountered during any component of the proposed project, all work will cease until a licensed archaeologist has been consulted.

2. Historic Buildings

See above.

3. Ethnic Cultural Values

See above.

4. Religious/Sacred Uses

See above.

U. Mandatory Findings of Significance

1. Environmental Quality Degradation

There will be a short-term disruption of the marine environment in the immediate platform areas and in barge mooring anchor locations. Upon removal of the platforms, it is anticipated that the natural ocean currents driving littoral sediments will restore the disturbed area back to its natural state. Upon completion of the project, the indigenous marine biota will recolonize and fill any voids created during the platform removal/pipeline abandonment operations.

2. Short-term vs. Long-term Environmental Goals

The physical removal of the platforms will result in temporary minor impacts to marine biota; however, as the proposed project will remove man-made structures and restore the marine environment to its natural state, it will not create an long-term detrimental effects on the environment.

3. Cumulative Impacts

This platform removal/pipeline abandonment project will result in a decrease of man caused cumulative impacts by restoring the marine environment to its natural state. This project will create temporary, minor impacts over a period of 120 - 130 days.

4. Adverse effects on Human Beings

This project consists of the removal of four offshore oil platforms. There could be some potential minor impacts to human beings as a result of any oil or diesel spill. Responses are addressed in the Critical Operations and Curtailment Plan and Chevron's existing Oil Spill Contingency Plan. Such potential will cease upon completion of the project.

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Austin, Mark, Noise Specialist
Vigil, Tony, Drafter

International Diving Services

Culwell, Andrew, Vice-president, West-Coast Services

6.3 PERSONS CONTACTED

Love, Milton R., Aquatic Biologist, Marine Sciences Department, University of California, Santa Barbara, telephone conversation, February 1993.

Meek, Robert P., Ecomar, Inc., telephone conversation, February 1993.

6.4 AGENCY CONTACTS

Oggins, Cy., California Coastal Commission
Nitsos, Richard California Department of Fish and Game, Environmental Services Division
Welch, Tiffany, U.S. Army Corps of Engineers
Severn, Raymond, City of Carpinteria
Lagomarsino, Irma, National Marine Fisheries Service, Southwest Region
Fusaro, Craig, Joint Oil/Fisheries Liaison Office

**APPENDIX A
PROJECT SCHEDULE**

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Task Name Start Date - End Date (Duration)	1995					1996	
	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY
Stack for Start of Removal 4/14/95 - 7/13/95 (3 Months)	█						
Mobilization 7/13/95 - 7/27/95 (14 Days)	█						
Tier to Site 7/27/95 - 7/29/95 (1 Day)	█						
Hippo Topside Demolition 7/29/95 - 8/19/95 (22 Days)	█	█					
Hippo Jacket Demolition 8/14/95 - 8/30/95 (23 Days)	█	█					
Hippo Topside Demolition 8/12/95 - 8/11/95 (30 Days)	█	█					
Hippo Offloading Cranes 8/11/95 - 8/16/95 (6 Days)	█	█					
Hippo Jacket Demolition 8/9/95 - 10/2/95 (28 Days)	█	█	█				
Hippo Offloading Cranes 9/27/95 - 10/2/95 (6 Days)	█	█	█				
Hippo Topside Demolition 10/2/95 - 10/21/95 (19 Days)	█	█	█	█			
Hippo Jacket Demolition 10/16/95 - 11/13/95 (30 Days)	█	█	█	█	█		
Hippo Offloading Cranes 11/9/95 - 11/13/95 (6 Days)	█	█	█	█	█		
Hippo Topside Demolition 10/17/95 - 11/23/95 (38 Days)	█	█	█	█	█	█	
Hippo Jacket Demolition 11/15/95 - 12/15/95 (27 Days)	█	█	█	█	█	█	█
Hippo Offloading Cranes 12/7/95 - 12/15/95 (9 Days)	█	█	█	█	█	█	█
Clearance Verification 12/12/95 - 12/28/95 (16 Days)	█	█	█	█	█	█	█
Final Debris Offload Cranes 12/28/95 - 1/20/96 (23 Days)	█	█	█	█	█	█	█
Demobilization 1/20/96 - 1/30/96 (7 Days)	█	█	█	█	█	█	█
Stack Completion of Removal 1/16/96 - 4/9/96 (3 Months)	█	█	█	█	█	█	█

ACTUAL

SLACK

**APPENDIX B
AIR QUALITY**

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TABLE 1 - AIR EMISSIONS CALCULATIONS MOBILIZATION/DEMobilIZATION

OPERATION	No. of Use (Days)	Duration Operating Time (hr/day)	Usage Factor (Percent)	Power Rating (HP)	Fuel Consumption (gal/hr)	Emission Estimates					
						NOx	ROC	PM-10			
						lb/day	Total tons	lb/day	Total tons		
Mobilization of Removal Equipment/ Demobilization (One operation for all platforms)											
Tug Boat	3	4	10	3500	39	171.756	0.344	28.080	0.056	19.876	0.040
Tug Boat	1	4	10	2000	32	41.754	0.084	7.680	0.015	5.436	0.011
Derrick Barge 50 ton	1	2	10	100	4	23.638	0.024	1.973	0.002	1.699	0.002
- Generator	1	2	10	1300	6	3.546	0.004	0.296	0.000	0.255	0.000
- Compressor	1	2	10	200	6	7.091	0.007	0.592	0.001	0.510	0.001
Crew Boat (ids)	1	2	10	800	6						
(cruises)		7	3		4	3.010	0.003	6.975	0.007	1.189	0.001
Derrick Barge 500 ton	1	7	10	100	40	20.064	0.020	2.052	0.002	5.096	0.005
- Generator	1	7	10	10	4	23.638	0.023	1.973	0.007	1.699	0.006
- Compressor	1	7	10	10	12	7.091	0.025	0.592	0.002	0.510	0.002
Utility Vessel (ids)	1	2	10	200	8	7.091	0.026	0.592	0.002	0.510	0.002
(cruises)		7	3		5	14.666	0.015	0.791	0.001	1.486	0.001
					50	68.755	0.059	2.520	0.003	6.371	0.006
					TOTAL		0.850		0.098		0.077

**TABLE 2 - AIR EMISSIONS CALCULATIONS
EMISSIONS PER PLATFORM**

OPERATION	No.	Duration of Use (Days)	Operating Time (hr/day)	Usage Factor (Percent)	Power Rating (HP)	Fuel Consumption (gals/hr)	Emission Estimates						
							NOx	ROC	PM-10				
						lb/day	Total tons	lb/day	Total tons	lb/day	Total tons		
Pre-Abandonment													
Survey Vessel	1	2	20			1200							
(Idle)							20	148 620	0.148	18 080	0.018	33 976	0.034
(Cruise)			4				60	124 620	0.125	3 360	0.003	8 494	0.008
Topside Removal													
Tug Boat	2	21	24	25	3600	39		171 766	1 803	28 060	0.285	19 876	0.209
Tug Boat	1	10	24	25	3600	39		85 878	0.429	14 040	0.070	9 938	0.050
Tug Boat	1	14	24	25	2000	32		82 630	0.436	11 520	0.061	8 154	0.067
Crew Boat	1	21	20	.	800	4		8 600	0.060	19 928	0.209	3 398	0.036
(Idle)								28 752	0.281	2 736	0.029	8 795	0.071
(Cruise)			20	.	1800	40		41 960	0.441	2 260	0.024	4 247	0.045
Welding Machine	2	21	24	80	80	12		78 340	0.823	3 360	0.035	8 494	0.089
Derrick Barge 50 ton	1	14	24	100	80	4		204 228	2 144	17 045	0.179	14 678	0.154
- Generator	1	14	24	10	1300	8		66 730	0.387	4 735	0.033	4 077	0.029
- Compressor	1	14	24	20	200	8		8 510	0.060	0 710	0.005	0 612	0.004
Derrick Barge 500 ton	1	10	24	100	200	4		17 019	0.119	1 420	0.010	1 223	0.009
- Generator	1	10	24	10	1300	4		66 730	0.284	4 735	0.024	4 077	0.020
- Compressor	1	10	24	10	200	12		17 019	0.086	1 420	0.007	1 223	0.006
Pile and Caisson Cutter	1	16	24	20	200	8		17 019	0.085	1 420	0.007	1 223	0.006
Crew Boat	1	16	7	.	800	4		3 010	0.024	6 975	0.069	1 189	0.010
(Idle)			3	.		40		43 200	0.346	2 052	0.018	5 096	0.041
Mechanical Cutter	1	18	10	100	100	15		66 641	0.709	7 398	0.069	8 371	0.051
Jacked Removal													
Tug Boat	3	10	24	25	3600	39		267 634	1 268	42 120	0.211	29 814	0.149
Crew Boat	1	10	20	.	800	4		8 600	0.043	19 928	0.100	3 398	0.017
(Idle)			4	.		40		57 600	0.298	2 736	0.014	6 795	0.034
(Cruise)			23	.	360	5		11 454	0.067	13 582	0.066	4 864	0.024
Dive Support Vessel	1	10	1	.	1800	30		8 076	0.040	0 684	0.003	1 274	0.006
(Idle)			20	.		5		41 960	0.210	2 260	0.011	4 247	0.021
(Cruise)			4	.	80	50		78 340	0.392	3 360	0.017	8 494	0.042
Welding Machine	2	10	24	60	80	12		204 229	1 021	17 045	0.085	14 678	0.073
Derrick Barge 500 ton	1	10	24	100	1300	4		56 730	0.284	4 735	0.024	4 077	0.020
- Generator	1	10	24	10	200	12		17 019	0.085	1 420	0.007	1 223	0.006
- Compressor	1	10	24	20	200	6		17 019	0.085	1 420	0.007	1 223	0.006

CHEVAIR VLS

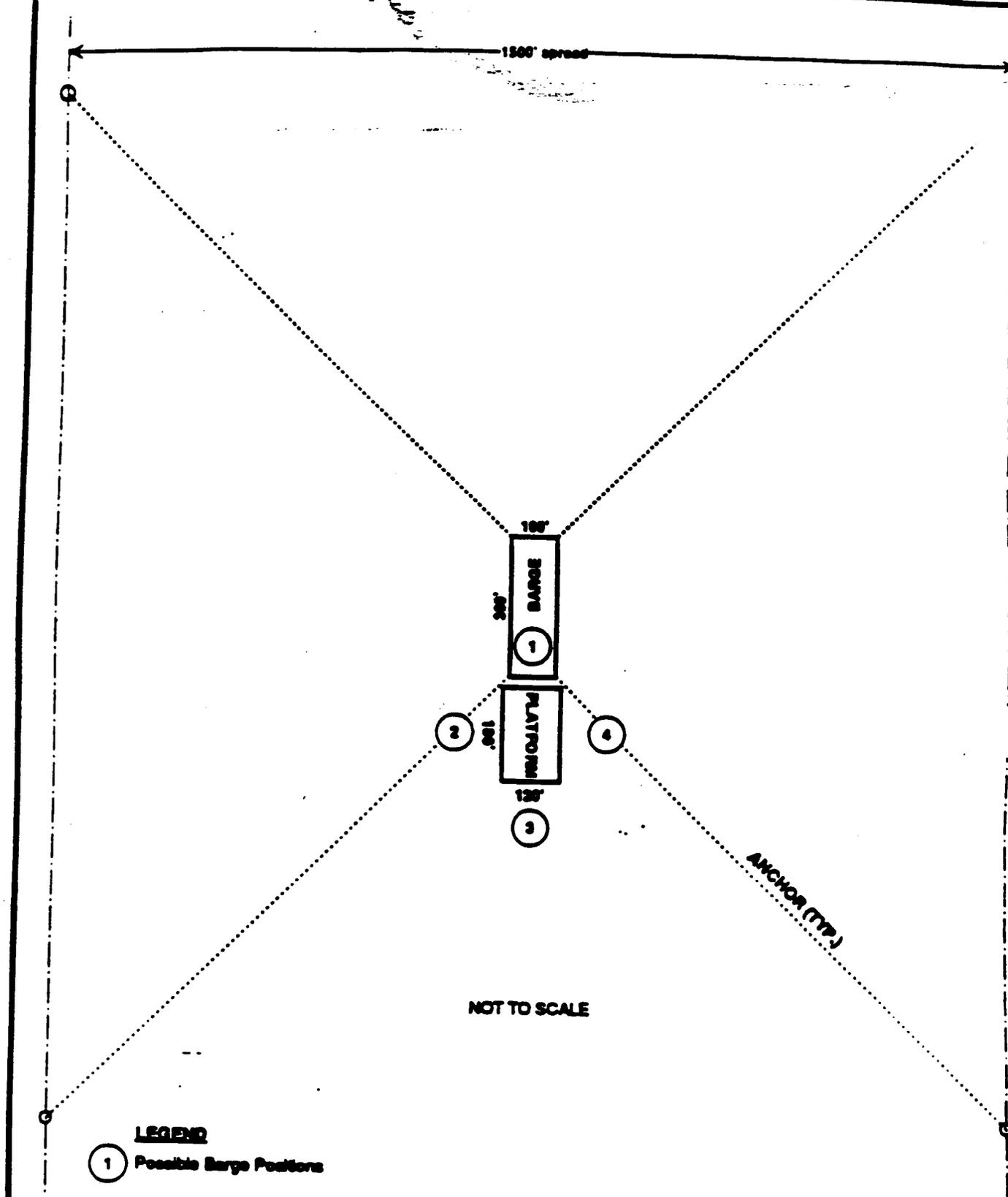
TABLE 2 - AIR EMISSIONS CALCULATIONS (Continued)
EMISSIONS PER PLATFORM

OPERATION	No. of Use (Days)	Operating Time (Hourly)	Usage Factor (Percent)	Power Rating (HP)	Fuel Consumption (gal/hr)	Emission Estimates					
						NOx	ROC	PM-10			
					Hourly	Total tons	Hourly	Total tons	Hourly	Total tons	
Tug Boat	1	4	100	3500	39	343.512	0.687	56.160	0.112	39.752	0.080
Debris Removal											
Tug Boat	1	5	25	3500	39	35.783	0.069	5.850	0.015	4.141	0.010
Tug Boat	1	5	25	2000	32	28.096	0.065	4.800	0.012	3.396	0.008
Derrick Barge 50 ton	1	5	100	100	4						
- Generator	1	5	10	1300	4	3.546	0.008	0.298	0.001	0.255	0.001
- Compressor	1	5	10	200	6	7.091	0.016	0.582	0.001	0.510	0.001
Crew Boat	1	5	20	800	6						
(Idle)											
(Cruise)	1	7			4	3.010	0.006	6.975	0.017	1.189	0.003
Site Clearance Verification					40	43.200	0.108	2.052	0.005	5.096	0.013
Tug Boat	1	2	40	1000	25	37.130	0.037	6.000	0.006	4.247	0.004
Dive Support Vessel	1	2		350							
(Idle)											
(Cruise)	1	7			5	3.486	0.003	4.134	0.004	1.486	0.001
Utility Vessel	2	9		1800	30	24.228	0.024	2.052	0.002	3.822	0.004
(Idle)											
(Cruise)	2	7			5	28.372	0.028	1.562	0.002	2.973	0.003
Crew Boat	1	3		800	50	117.510	0.118	5.040	0.005	12.741	0.013
(Idle)											
(Cruise)	1	7			4	3.010	0.003	6.975	0.007	1.189	0.001
Survey Vessel	1	3		1200	40	43.200	0.043	2.052	0.002	5.096	0.005
(Idle)											
(Cruise)	1	20			20	146.520	0.148	9.040	0.009	16.988	0.017
Pipeline Abandonment					50	124.620	0.125	3.360	0.003	8.494	0.008
Tug Boat	1	2	40	2000	32	46.976	0.047	7.680	0.008	5.438	0.005
Crew Boat	1	2		800							
(Idle)											
(Cruise)	1	7			4	3.010	0.003	6.975	0.007	1.189	0.001
					40	43.200	0.043	2.052	0.002	5.096	0.005
					TOTAL	14.233	1.928	7.608	0.002	15.133	0.005
TOTAL PER PLATFORM WITH MOBREMOS						14.923	2.025	7.608	0.002	15.990	0.005
TOTAL FOR TWO PLATFORMS						29.156	3.953	15.216	0.004	31.980	0.010
TOTAL FOR FOUR PLATFORMS						57.622	7.608	30.432	0.008	63.960	0.020

**APPENDIX C
ANCHOR PLAN**

The following anchor plan diagram is provided as an example of a typical barge mooring spread. In order to avoid damage to subsea pipelines, cable, and sensitive bottom habitat, the seafloor will be surveyed prior to anchor laying.

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LEGEND
 ① Possible Barge Positions

**TYPICAL PLATFORM REMOVAL
 BARGE MOORING SPREAD**

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APPENDIX D
EMERGENCY CONTACT LIST

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APPENDIX D EMERGENCY CONTACT LIST

In the event of an emergency situation during abandonment operations, the following agencies will be notified.

Company Notifications	
<p>Senior Land Representative Lee Bafalon (805) 658-4345</p>	<p>Operations Manager Gary Gray, Abandonment Team Leader (805) 658-4360</p> <p>Greg Sinclair (805) 658-4394</p> <p>Mike Jennings (805) 658-4458</p>
Required Government Agency Notification	
<p>U.S. Coast Guard National Command Center 2100 2nd Street Southwest, Room 2611 Washington, D.C. 20593 (800) 424-8802</p> <p>Marine Safety Office 165 North Pico Avenue Long Beach, CA 90802-1096 (213) 499-5555</p>	<p>State of California Office of Emergency Services 2800 Meadowview Road Sacramento, CA 95832 (800) 852-7350</p> <p>State Lands Commission District Office 200 Oceangate, 12th Floor Long Beach, CA 90802 (310) 590-5201</p>
Government Agency Notification	
<p><u>Federal</u></p> <p>U.S. Department of Transportation Information Resource Manager Office of Pipeline Safety Washington, D.C. 20590</p> <p>Ed Ondak Western Regional Office Lakewood, CO (303) 236-3424 (24-hour)</p> <p>U.S. Department of Interior National Park Service Channel Islands National Park 1901 Spinnaker Drive Ventura, CA 93001</p>	<p>U.S. Army Corps of Engineers Ventura Regulatory Office 2151 Alessandro Drive, Suite 100 Ventura, CA 93001 (805) 641-1121</p> <p>U.S. Fish and Wildlife Service Field Supervisor, Ecological Services Federal Building, 2400 Avila Road Laguna Niguel, CA 92677</p> <p>Environmental Protection Agency Region IX 215 Fremont San Francisco, CA 94105</p>

Government Agency Notification (Continued)

<p><u>State</u></p> <p>Division of Oil and Gas District Office 5075 South Bradley Road, Suite 221 Santa Maria, CA 93455 (805) 937-7246</p> <p>Regional Water Quality Control Board Regional Office 107 South Broadway, Room 4027 Los Angeles, CA 90012</p> <p>California Department of Parks and Recreation Channel Coast District 24 East Main Street Ventura, CA 93001</p> <p>Office of State Fire Marshall Pipeline Safety Division (818) 337-9999 (916) 427-4500</p>	<p>California Coastal Commission 925 De la Vina Street Santa Barbara, CA 93101 (805) 963-6871</p> <p>45 Fremont Street, Suite 2000 San Francisco, CA 94105 (415) 904-5200</p> <p>Department of Fish and Game Oil Spill Prevention and Response (OSPR) 1700 K Street, Suite 250 Sacramento, CA 94244-2090 (916) 445-0045 (between 6 A.M. and 10 P.M.)</p>
<p><u>Santa Barbara County</u></p> <p>County of Santa Barbara Resource Management Department Energy Division 1226 Anacapa Street, Suite 2 Santa Barbara, CA 93101</p>	

APPENDIX E
LOCAL NOTICE TO MARINERS

The notice describing the project's offshore boundaries and hazards to navigation will be sent to the U.S. Coast Guard for publication in the Local Notice to Mariners prior to the start of the proposed project.

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APPENDIX F
MITIGATION MONITORING PLAN

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EXHIBIT "C"
MITIGATION MONITORING PROGRAM
FOR THE OFFSHORE OIL PLATFORM ABANDONMENT AND REMOVAL
IN THE SANTA BARBARA CHANNEL - CHEVRON PROJECT

OFFSHORE MONITORING

1. **Impact:** The proposed project may create hazards to navigation caused by the temporary presence of marine equipment offshore.

Project Mitigation:

- a) The mooring system of the derrick barge will be marked as orange rubber crown buoys. These markers will delineate the mooring spread.
- b) All platforms are presently well lit. The lights will be moved to the legs once the platform decks have been removed.
- c) Chevron will file a Local Notice to Mariners with the U.S. Coast Guard which will specify the project boundaries, hazards to navigators, and call signs.
- d) All marine vessels utilized in the removal/abandonment operations will use designated vessel traffic corridors and shipping lanes to avoid collisions with other vessels. The crew boats transporting personnel will be using these traffic corridors.

Monitoring:

Staff of the State Lands Commission, while inspecting offshore operations, will periodically monitor the project to assure that the marked orange rubber crowned buoys are in place, the vessels are well lit and highly visible at night, and the Local Notice to Mariners has been filed. Additionally, staff will visually observe the local vessel traffic to assure that the project is in compliance.

-
2. **Impact:** This proposed project may result in unsafe working conditions if allowed to operate during rough inclement weather when unsafe sea states occur.

Project Mitigation:

- a) The final determination for shutdown of operations will be made by the barge superintendent or vessel captain in conjunction with the removal contractor project manager.
- b) The barge superintendent or vessel captain will resume operations when unsafe sea state subside.

Monitoring:

Staff of the State Lands Commission while conducting periodic project inspections, will monitor the project to assure that the shutdown procedures are initiated in the event of unsafe seas, as determined by the barge superintendent or vessel captain.

3. **Impact:** The proposed project may produce noises from equipment.

Project Mitigation:

- a) All equipment will be muffled in compliance with local standards.

Monitoring:

Staff of the State Lands Commission will monitor both onshore and offshore operations and inspect equipment to assure engines are covered and mufflers are in good repair.

4. **Impact:** This project may produce trash or debris generated by removal crews.

Project Mitigation:

- a) Trash and debris generated offshore will be confined to the platforms and moved to the barges in metal trash containers and properly disposed of when the vessel returns to port.

Monitoring:

Staff of the State Lands Commission will periodically visually monitor both onshore and offshore projects to assure that all trash, debris, food containers, etc., generated by the project and the abandonment crews are policed and properly disposed.

5. **Impact:** Debris may have accumulated on the ocean bottom during the operations of the platforms or from the dismantling operations.

Project Mitigation:

- a) Verification of site clearance will be performed as part of the final debris recovery operation utilizing a side scan sonar survey.
- b) Suspect targets or debris will be plotted for target verification survey which will be plotted for recovery.
- c) Any debris located will be recovered by divers to complete the site clearance verification. Test trawls over the site of the abandoned platforms will be conducted in areas where trawling is legal.

Monitoring:

Staff of the State Lands Commission will periodically visually monitor the site clearance operations and will check the side-scan sonar records.

6. **Impact:** The oil and gas pipelines for Platform Grace could be damaged during the removal operations of Platform Hope.

Project Mitigation:

- a) To prevent damage to the oil and gas pipelines from Platform Grace, no heavy lifts will be made over the pipelines during the removal of Platform Hope.

-
- b) Any lift where safe resetting of the package may be difficult, will be engineered with guidelines installed to control the package movement horizontally for approximately 2 feet of vertical movement.

Monitoring:

Staff of the State Lands Commission will periodically visually monitor the deck removal operations, where difficult lifts may be anticipated, to assure all appropriate safety measures are being employed.

7. **Impact** Where underwater explosives are used, there will be some mortality among the pelagic and demersal fish within about 100 meters of the detonation point. Additionally, untrained personnel and improperly handling and storage of explosives can result in accidental explosions.

Project Mitigation:

- a) Use of explosives will be conducted in accordance with all laws and regulations regarding such activity.
- b) A licensed State of California blasting supervisor will direct the work, and will coordinate the clearance of the site prior to making a shot.
- c) Explosives will be stored in a safe manner and in well-marked containers. Nitromethane will be used as the main charge, and is not classed as an explosive when stored prior to mixing.
- d) Platform removal operations will be timed to avoid critical cetacean migratory periods.
- e) Observers located on the abandonment support vessels will monitor the area prior to, during, and after detonation of charges; detonation of charges will be delayed until all marine mammals observed in the area (within 1,000 yards [914 m] are certain to have vacated; detonation will only occur during daylight hours to facilitate visual monitoring; pre and post-detonation surveys by divers, including recovery of any injured or dead fish will be conducted immediately after detonation; and implementation of staggering of detonations which will reduce the maximum pressure generated by the explosions.

-
- d) A killer whale sonic warning system which emits sounds nearly identical to those emitted by "killer whales" will be placed in the waters near the platforms prior to blasting.

Monitoring:

Staff of the State Lands Commission will periodically visually monitor the storage of explosives, detonation monitoring procedures, and the detonation phase of operations to assure all safety mitigation measures described above are being employed.

8. **Impact:** During the removal of the oil platforms there is always the possibility of a small operational spill from fuel transfers or accidental leaks.

Project Mitigation:

- a) Procedures for major and minor spill events are outlined in Chevron's Oil Spill Contingency Plan for State Leases.
- b) Should the spill exceed the capacity of the onsite equipment and personnel, additional resources are available through Chevron's local oil spill response organization and Clean Seas Oil Spill Cooperative.

Monitoring:

Staff of the State Lands Commission will be familiar with Chevron's Oil Spill Contingency Plan for State Leases. Staff will periodically visually monitor the removal phase of operations to assure all safety and environment mitigation measures described above are being employed.

9. **Impact:** There will be emissions created during the abandonment and removal of the four offshore oil and gas platforms.

Project Mitigation:

- a) Emissions would be reduced by utilizing the following Santa Barbara County APCD standard measures which are included in the 1991 Air Quality Attainment Plan (AQAP) as control measures N-IC-7:

- Equipment shall be maintained as per manufacturer's specifications;
- Catalytic converters shall be installed on all gasoline-powered equipment (if applicable);
- The fuel injection timing shall be retarded on all gasoline-powered equipment by two (2) degrees from manufacturers recommendations;
- Gasoline-powered equipment shall be substituted for diesel-powered equipment, if feasible;
- Direct injection diesel engines (i.e., Caterpillar D399 of equivalent) shall be used if available;
- Turbocharged diesel engines with inter cooling shall be used if available; and
- Reformulated diesel fuel and high pressure injectors shall be used in all diesel-powered removal and abandonment equipment.

Monitoring:

Staff will be familiar with the Santa Barbara County Air Pollution Control District (APCD) standard measures which are included in the 1991 Air Quality Attainment Plan (AQAP) as control measures N-IC-7 stated above. Staff will periodically visually monitor the removal phase of operations to assure the standard measures stated above are being employed.

10. **Impact:** There are known kelp beds and hard-bottom areas in the vicinity of the platforms which could be impacted during the deployment of anchors. When the anchors are removed, seafloor scarring may be in excess of prescribed limits.

Project Mitigation:

- a) There will be a pre- and post-project surveys conducted within a 1,000 foot radius of the platforms.

-
- 1) The pre-operations survey will note all sensitive bottom features, including pipelines, rocky outcrops, and kelp beds observed during the survey. These areas will be noted on applicable navigation charts and no anchors will be placed in these areas.
 - 2) The post-operations project survey will note all anchor scars and record any additional debris to be removed. Any anchor scars exceeding prescribed coastal commission limits will be leveled.

Monitoring:

Staff of the State Lands Commission will periodically monitor the pre- and post-survey operators to ensure proper implementation. Survey reports will be reviewed for completeness and accuracy. Anchor deployment locations will be monitored to ensure compliance.

EXHIBIT "C"

**REMOVAL OF OFFSHORE OIL PLATFORMS
HEIDI, HILDA, HOPE AND HAZEL (Project)**

The following stipulations are incorporated into the Project:

1. Prior to the start of the Project, Chevron shall verify in writing to the SLC that all personnel involved in the offshore phases of the Project have completed the Western States Petroleum Association Fisheries Training Program.
2. Chevron will employ "independent observers" to monitor the affected areas for marine mammals prior, during, and after the use of explosives during the cutting of platform piles and conductors. Such observers will be hired from a list provided by the California Department of Fish and Game (DFG). A list of the observers retained shall be provided to the SLC and the DFG prior to the start of the Project.
3. Following the completion of the jacket removal operations for the first platform, Platform Hope under the Project schedule currently on file with the SLC, and before the start of jacket removal operations for the next platform (Platform Heidi), Chevron and the contractor shall meet and confer with the SLC and the Responsible Agencies as defined by the CEQA to evaluate the effectiveness of the procedures and mitigation measures in place for the Project. Chevron shall subsequently proceed with the Project as directed by the SLC. The need for a similar meeting following the removal of Platform Heidi shall be determined by the SLC in consultation with Chevron, the contractor and the Responsible Agencies.
4. The derrick and transport barges that are to be used for the removal of Platform Hope shall not be positioned on the east side of the Platform, i.e. the side on which the pipelines are to remain to service Platforms Grace and Gail in the federal OCS.
5. Within 10 working days of the completion of the project, Chevron shall submit a "trawl plan" (Plan) to the SLC for its approval. Such Plan shall provide for test trawls over the debris clearance area at each platform location, specifically the area within a 1,000 foot radius from each platform. Such Plan shall also provide for the use of conventional trawling gear, i.e., gear without modifications that would allow it to clear seafloor obstructions, comparable to that which would be used by commercial fishermen in the region. The SLC will review such Plan in consultation with the Joint Oil/Fisheries Liaison Office. Chevron shall proceed with the test trawls within thirty (30) days of receiving notification of SLC approval of the Plan and shall notify the SLC upon the successful conclusion of the trawls.
6. All pipelines, cables, and structures abandoned in place in the offshore will be surveyed with an ROV or high resolution side scan sonar to verify that such pipelines and appurtenances buried at the time of abandonment remain buried and that such pipelines and appurtenances that are permitted to remain exposed continue to remain free of excessive spanning or do not present any other potential interference to commercial fishing operations. The beach and surfzone area, within 1,000 feet of the Mean Low Tide Line, through which the pipelines associated with Platform Hazel pass, shall be visually inspected by a diver.

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Such surveys shall be conducted: 1) within 30 days following completion of the project; 2) one year thereafter; and 3) upon review of the one-year survey, a determination will be made to schedule a subsequent annual survey or to schedule a survey at a subsequent interval to be determined by SLC staff based on the results of the one year survey. The details of each post-construction survey plan will be submitted to the SLC for review and approval of scope and content prior to the conduct of each survey.

Within 60 days of the completion of each survey, Chevron shall submit a report to the SLC which describes the status of the abandoned facilities.

7. If in the future any portion of a platform related structure or pipeline abandoned in place becomes exposed, Chevron shall, within 90 days of being notified, identify the nature of the exposed material and submit one of the following to the SLC for its review and approval:
- a) with respect to the caisson(s) of Platform Hazel, a plan to reduce or eliminate potential conflicts with commercial fishing activities;
 - b) with respect to an offshore section of a pipeline and its appurtenances, a remediation plan which shall contain an alternative removal procedure; and
 - c) with respect to the beach and shorezone area described in Stipulation 6, a removal plan.

Upon approval by the SLC, Chevron shall implement the submitted plan on a schedule and in the manner specified by the SLC.

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EXHIBIT "D"

**FINAL MITIGATION MONITORING PROGRAM
FOR THE OFFSHORE OIL PLATFORM ABANDONMENT AND REMOVAL
IN THE SANTA BARBARA CHANNEL - CHEVRON PROJECT**

OFFSHORE MONITORING

1. **Impact:** The proposed project may create hazards to navigation caused by the temporary presence of marine equipment offshore.

Project Mitigation:

- a) The mooring system of the derrick barge will be marked as orange rubber crown buoys. These markers will delineate the mooring spread.
- b) All platforms are presently well lit. The lights will be moved to the legs once the platform decks have been removed.
- c) The contractor will file a Local Notice to Mariners with the U.S. Coast Guard which will specify the project boundaries, hazards to navigators, and call signs. Copies of said Notice shall also be provided to the Joint Oil/Fisheries Liaison Office and posted in the offices of the Harbor Master at Santa Barbara, Morro Bay, Port Hueneme, Ventura, Los Angeles, and Long Beach Harbors.
- d) All marine vessels utilized in the removal/abandonment operations will use designated vessel traffic corridors and shipping lanes. The crew boats transporting personnel will also utilize such traffic corridors.

Monitoring:

Staff of the State Lands Commission, while inspecting offshore operations, will periodically monitor the project to assure that the marked orange rubber crowned buoys are in place, the vessels are well lit and highly visible at night, and the Local Notice to Mariners has been filed. Additionally, staff will observe the local vessel traffic to assure that the project is in compliance.

2. **Impact:** This proposed project may result in unsafe working conditions if allowed to operate during rough inclement weather when unsafe sea states occur.

Project Mitigation:

- a) The final determination for shutdown of operations will be made by the barge superintendent or vessel captain in conjunction with the removal contractor project manager.

- b) The barge superintendent or vessel captain will resume operations when the unsafe sea state is no longer present.

Monitoring:

Staff of the Staff Lands Commission, while conducting periodic project inspections, will monitor the project to assure that the shutdown procedures are initiated in the event of unsafe sea states as determined by the barge superintendent or vessel captain.

- 3. **Impact:** This project may produce trash or debris generated by the contractor's crews or subcontractors.

Project Mitigation:

- a) Trash and debris generated offshore will be confined to the platforms and moved to the barges in metal trash containers and properly disposed of when the vessel returns to Port.
- b) The contractor and subcontractors shall maintain a log of all tools, equipment of other debris that are accidentally dropped into the water during the course of demolition operations. The log, a copy of which is to be submitted to the SLC, will record the date, time, a description of the item, and approximate location to facilitate diver recovery during final site clearance.

Monitoring:

Staff of the State Lands Commission will periodically monitor both onshore and offshore projects to assure that all trash, debris, food containers, etc. generated by the project and the contractor's crews are policed and properly disposed.

- 4. **Impact:** Debris may have accumulated on the ocean bottom during the operations of the platforms or from the dismantling operations.

Project Mitigation:

- a) Verification of site clearance will be performed as part of the final debris recovery operation utilizing a high resolution side scan sonar survey. A description of the survey shall be submitted to the SLC for its review and approval prior to the conduct of such survey.
- b) Suspect targets or debris will be plotted for positive verification and recovery.
- c) The debris located will be recovered by divers to complete the site clearance verification. A test trawl will be conducted over each site as provided by Stipulation 5 as contained in Exhibit "C" and made a part hereof by this reference.

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Monitoring:

Staff of the State Lands Commission will periodically monitor the site clearance operations and will check the side-scan sonar records and the trawl report to verify that all debris has been removed.

5. **Impact:** The oil and gas pipelines for Platforms Grace and Gail could be damaged during the removal operations of Platform Hope.

Project Mitigation:

- a) To prevent damage to the oil and gas pipelines from Platform Grace, no heavy lifts will be made over the pipelines during the removal of Platform Hope.
- b) Any lift where safe resetting of the package may be difficult, will be engineered with guidelines installed to control the package movement horizontally for approximately 2 feet of vertical movement.
- c) The derrick and transport barges used to remove Platform Hope shall not be positioned on the east side the platform, i.e. the side on which working pipelines are to remain to service Platforms Grace and Gail in the federal OCS.

Monitoring:

Staff of the State Lands Commission will verify the barge location and periodically monitor the deck removal operations where difficult lifts may be anticipated to assure all appropriate safety measures are being employed.

6. **Impact:** Where underwater explosives are used there will be some mortality among the pelagic and demersal fish within about 100 meters of the detonation point. Additionally, untrained personnel and improperly treated and stored explosives can result in accidental explosions.

Project Mitigation:

- a) Use of explosives will be conducted in accordance with all laws and regulations regarding such activity.
- b) A licensed State of California blasting supervisor will direct the work, and will coordinate the clearance of the site prior to making a shot.
- c) Explosives will be stored in a safe manner and in well-marked containers.
- d) Platform removal operations will be timed to avoid critical cetacean migratory periods.

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- e) Independent observers located on the abandonment support vessels will monitor the area prior to, during and after detonation of charges; detonation of charges will be delayed until all marine mammals observed in the area (within 1,000 yards [914 m]) are certain to have vacated; detonation will only occur during daylight hours to facilitate visual monitoring; pre and post-detonation surveys by divers, including recovery of any injured or dead fish will be conducted immediately after detonation; and implementation of staggering of detonations which will reduce the maximum pressure generated by the explosions.
- f) A killer whale sonic warning system which emits sounds nearly identical to those emitted by "killer whales" will be placed in the waters near the platforms prior to blasting.

Monitoring:

Staff of the State Lands Commission will periodically inspect the storage of explosives, detonation monitoring procedures, and the detonation phase of operations to assure all safety mitigation measures described above are being employed.

- 7. **Impact:** During the removal of the oil platforms there is always the possibility of a small operational spill from fuel transfers or accidental leaks.

Project Mitigation:

- a) Procedures for major and minor spill events are outlined in Chevron's Oil Spill Contingency Plan for State Leases.
- b) Should the spill exceed the capacity of the onsite equipment and personnel, additional resources are available through Chevron's local oil spill response organization and Clean Seas Oil Spill Cooperative.

Monitoring:

Staff of the State Lands Commission will be familiar with Chevron's Oil Spill Contingency Plan for State Leases. Staff will periodically monitor the removal phase of operations to assure all safety and environment mitigation measures described above are being employed.

- 8. **Impact:** There will be emissions created during the abandonment and removal of the four offshore oil and gas platforms.

Project Mitigation:

- a) As determined by the Santa Barbara County APCD, emissions would be reduced by utilizing the following Santa Barbara County APCD standard measures which are included in the 1991 Air Quality Attainment Plan (AQAP) as control measures N-IC-7:

- Equipment shall be maintained as per manufacturer's specifications;
- Catalytic converters shall be installed on all gasoline-powered equipment (if applicable);
- The fuel injection timing shall be retarded on all gasoline-powered equipment by two (2) degrees from manufacturers recommendations;
- Gasoline-powered equipment shall be substituted for diesel-powered equipment if feasible;
- Direct injection diesel engines (i.e. Caterpillar D 399 of equivalent) shall be used if available;
- Turbocharged diesel engines with inter-cooling shall be used if available; and
- Reformulated diesel fuel and high pressure injectors shall be used in all diesel-powered removal and abandonment equipment.

Monitoring:

Staff will be familiar with the Santa Barbara County Air Pollution Control District (APCD) standard measures which are included in the 1991 Air Quality Attainment Plan (AQAP) as control measures N-IC-7 stated above. Staff will periodically monitor the removal phase of operations to assure the standard measures stated above are being employed and advise the APCD of any difficulties.

9. **Impact:** There are known kelp beds in the vicinity of the platforms which could be impacted during the deployment of anchors. When the anchors are removed, seafloor scarring may occur.

Project Mitigation:

There will be a pre and post-project surveys conducted within a 1,000 foot radius of the platforms.

- 1) The pre-operations survey will note all sensitive bottom features, including pipelines, rocky outcrops, and kelp beds observed during the survey. These areas will be noted on applicable navigation charts and no anchors will be placed in these areas.
- 2) The post-operations project survey will note all anchor scars and record any additional debris to be removed. Anchors, of which no more than four (4) will be used in the barge mooring spread, shall be placed and retrieved vertically.

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Monitoring:

Staff of the State Lands Commission will be present at anchor placement and retrieval. Commission staff will periodically monitor the pre and post- survey operations to ensure proper implementation. Survey reports will be reviewed for completeness and accuracy. Anchor deployment locations will be monitored to ensure compliance.

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